22101923674

TENTH ANNUAL CONVENTION

OF THE

ASSOCIATION OF STATE AND NATIONAL FOOD AND DAIRY DEPARTMENTS

(Interstate Pure Food Commission.) Held at Hartford, Connecticut, July 17–20, 1906. 8vo, vi + 349 pages. Cloth, $3.00.

PUBLISHED BY

JOHN WILEY & SONS

ELEVENTH ANNUAL CONVENTION

OF THE

Association of State and National Food and Dairy Departments

HELD AT

Jamestown Tercentennial Exposition
July 16–19, 1907

NEW YORK
JOHN WILEY & SONS
LONDON: CHAPMAN & HALL, LIMITED
1908

> "Incidentally, in the passage of the pure food law the action of the various State food and dairy commissioners showed in striking fashion how much good for the whole people results from the hearty co-operation of the Federal and State officials in securing a given reform. It is primarily to the action of these State commissioners that we owe the enactment of this law, for they aroused the people, first to demand the enactment and enforcement of State laws on the subject, and then the enactment of the Federal law without which the State laws were largely ineffective. There must be the closest co-operation between the National and State Governments in administering these laws."
>
> —From President Roosevelt's Message to Congress, December, 1907.

Copyright, 1908,
by
JOHN WILEY & SONS

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No. WA
K54146

Press of the Publishers Printing Company, New York

CONTENTS

PAGE

MINUTES OF THE ELEVENTH ANNUAL CONVENTION 7

REPORT OF THE EXECUTIVE COMMITTEE, MADE BY THE SECRETARY....... 8

PUBLICITY IN THE ENFORCEMENT OF PURE-FOOD LAWS................ 11
By Hon. EDWARD K. SLATER, State Dairy and Food Commissioner of Minnesota.

CO-OPERATION BETWEEN THE STATE AND FEDERAL AUTHORITIES....... 15
By Hon. A. H. JONES, State Food Commissioner of Illinois.

POSSIBLE ACCOMPLISHMENT BY INDEPENDENT CITY ACTION............ 25
By W. P. CUTLER, M.D., General Food Inspector. Kansas City, Mo.

COMMISSIONERS' RULINGS.. 33
By Hon. A. C. BIRD, Commissioner, Dairy and Food Department, Lansing, Mich.

REVIEW OF PORT-INSPECTION WORK............................... 40
By Prof. R. E. DOOLITTLE, Chief of New York Laboratory, U. S. Department of Agriculture.

THE ELEMENT OF UNIFORMITY IN NATIONAL AND STATE FOOD LAWS.... 48
By Hon. J. Q. EMERY, Dairy and Food Commissioner, Madison, Wis.

REMARKS OF MR. W. E. ROBINSON, MEMBER OF THE CANNERS' ASSOCIATION 57

REMARKS BY HON. HENRY H. KRACKE 62

THE EFFECT ON BUTTER FROM FEEDING COTTON SEED OR COTTON-SEED MEAL, AND DIFFICULTIES MET WITH IN DETECTING ITS ADULTERATION 65
By Prof. W. M. ALLEN, Food Chemist, North Carolina State Board of Agriculture.

THE SCORE CARD AND ITS APPLICATION TO DAIRY INSPECTION.......... 69
By Mr. E. H. WEBSTER, Chief of Dairy Division, Department of Agriculture.

HAS THE MILK STANDARD OUTLIVED ITS USEFULNESS? 75
By Mr. P. M. HARWOOD, General Agent, Massachusetts Dairy Bureau.

MILK-INSPECTION WORK AT RICHMOND, VA. 86
By ERNEST C. LEVY, M.D., Chief Health Officer of Richmond.

THE DAIRY INTERESTS OF COLORADO 99
By Hon. B. G. D. BISHOPP, State Dairy Commissioner, Denver, Col.

BUTTER- AND CHEESE-FACTORY SANITATION 105
By Hon. A. H. WHEATON, State Dairy and Food Commissioner, Brookings, S. D.

COMMITTEE ON RESOLUTIONS 113

REPORT OF THE TREASURER 113

PAGE

Food-Control Work in the South during the Past Year 114
By Mr. T. K. Bruner, Secretary, State Board of Agriculture, Raleigh, N. C.

Conditions in the Drug Trade Affecting U. S. P Requirements.... 122
By Prof. H. E. Barnard, State Food and Drug Commissioner, and Chemist to the State Board of Health, Indianapolis, Ind.

Some Defects of State Drug Legislation 129
By Dr. James H. Beal, Chief Drug Inspector of Ohio.

Diabetic Foods.................................... 135
By Prof. A. L. Winton, Chief of the Chicago Food and Drug Laboratory, U. S. Department of Agriculture, Bureau of Chemistry.

Antiseptics in Tomato Catsup.................................. 141
By Prof. Floyd W. Robison, State Analyst, Michigan.

Restrictions of Artificial Color in the Preparation of Food Products, with Specific Recommendations........................ 146
By Prof. Julius Hortvet, State Chemist, Minnesota.

Color in Butter....................................... 152
By Hon. R. M. Washburn, State Dairy and Food Commissioner for Missouri.

The Importance of Prohibiting the Use of Artificial Coloring where It Is Used for the Purpose of Deception..................... 154
By Prof. E. H. S. Bailey, Chemist to the State Board of Health, Lawrence, Kan.

"Like Substances"..................................... 166
By Prof. James H. Shepard, State Analyst, South Dakota.

Plain Labelling 175
By Mr. Robert McDowell Allen, Head, Division State Food Inspection, Kentucky Agricultural Experiment Station, Lexington, Ky.

Bleaching of Flour..................................... 196
By Prof. E. F. Ladd, Chemist and Food Commissioner for North Dakota.

Discussion on Place of Meeting for Next Convention........... 209

Review of Pure-Food Control in the West...................... 215
By Hon. E. W. Burke, State Dairy and Food Commissioner, Wyoming.

The Guaranty Clause.................................... 218
By Prof. E. W. Magruder, Chief Chemist, Department of Agriculture of Virginia.

Notes on the National Spice Standards......................... 222
By Dr. William Frear, Vice-Director and Chemist, Agricultural Experiment Station, State College, Pa.

The Sanitary Side of the Production, Manufacture, and Distribution of Food Products.................................... 236
By Dr. T. J. Bryan, State Analyst, Illinois.

The People's Lobby and its Pure-Food Work...................... 241
By Mr. Henry Beach Needham, Secretary of the People's Lobby, Washington, D. C.

The Preparation of Fruits and Vegetables with and without Preservatives..................................... 252
By Mr. Sebastian Mueller, Second Vice-President and General Manager of H. J. Heinz Company, Pittsburg, Pa.

PAGE

THE PREPARATION OF TOMATO CATSUP WITH AND WITHOUT PRESERVATIVES 261
By Mr. CHARLES F. LOUDON, Terre Haute, Ind.

THE PRESERVATION AND DISTRIBUTION OF SODA-FOUNTAIN SIRUPS WITH AND WITHOUT PRESERVATIVES 264
By Mr. A. G. RICHARDSON, Rochester, N. Y.

ADDRESS OF MR. E. C. JOHNSON, SECRETARY OF THE NATIONAL ASSOCIATION OF MANUFACTURERS OF FOOD PRODUCTS 271

NATIONAL CONSUMERS' LEAGUE'S WORK FOR UNIFORM FOOD LAWS 274
By MISS ALICE LAKEY, Chairman, Food Committee, National Consumers' League.

AMERICAN WINES AND THE PURE-FOOD LAW 282
By Mr. PERCY T. MORGAN, San Francisco, Cal.

THE EFFECT ON THE HUMAN SYSTEM OF LOUISIANA-MANUFACTURED SIRUPS AND MOLASSES 299
By Dr. C. H. IRION, President, Louisiana State Board of Health, New Orleans.

CORN SIRUP (GLUCOSE) 340
By Mr. T. B. WAGNER, of the Corn Products Refining Company.

REPORT OF THE FOOD-STANDARD COMMITTEE 347
By Dr. RICHARD FISCHER, Chemist, Dairy and Food Commission, Wisconsin.

PRINCIPLES OF UNIFORMITY IN PURE-FOOD LAWS 380
By Hon. J. B. NOBLE, State Dairy and Food Commissioner, Connecticut.

REPORT OF THE COMMITTEE ON RESOLUTIONS 388

MEMBERS OF THE ASSOCIATION IN ATTENDANCE AT THE CONVENTION 392

DELEGATES TO THE CONVENTION FROM CITY PURE-FOOD DEPARTMENTS NOT MEMBERS OF THE ASSOCIATION 396

REPRESENTATIVES PRESENT FROM ALLIED ASSOCIATIONS, COMMISSIONS, AND LEAGUES 396

MANUFACTURERS AND THEIR REPRESENTATIVES PRESENT 396

OTHERS PRESENT 398

INDEX 399

OFFICERS OF THE ASSOCIATION.

E. F. Ladd, President, Fargo, North Dakota.
E. W. Burke, First Vice-President, Evanston, Wyoming.
H. E. Schuknecht, Second Vice-President, Chicago, Illinois.
E. W. Magruder, Third Vice-President, Richmond, Virginia.
R. M. Allen, Secretary, Lexington, Kentucky.
T. K. Bruner, Treasurer, Raleigh, North Carolina.

EXECUTIVE COMMITTEE.

E. F. Ladd, North Dakota.
R. M. Allen, Kentucky.
J. Q. Emery, Wisconsin.
F. J. H. Kracke, New York City.
A. C. Bird, Michigan.

JOINT FOOD STANDARD COMMISSION FROM THE ASSOCIATION OF STATE AND NATIONAL FOOD AND DAIRY DEPARTMENTS AND THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS.

Richard Fischer, Madison, Wis.
H. E. Barnard, Indianapolis, Ind.
Elton Fulmer, Pullman, Wash.
E. H. Jenkins, New Haven, Conn.
M. A. Scovell, Lexington, Ky.
William Frear, State College, Pa.
H. A. Weber, Columbus, Ohio.
H. W. Wiley, Washington, D. C.

ELEVENTH ANNUAL CONVENTION

OF THE

Association of State and National Food and Dairy Departments

HELD AT

JAMESTOWN TERCENTENNIAL EXPOSITION

JULY 16-19, 1907

THE initial meeting of the Convention was held on Tuesday, July 16, 1907, in the Convention Hall, Inside Inn, Jamestown Tercentennial Exposition. In the absence of the President of the Association, Horace Ankeney, of Xenia, Ohio, and the Vice-Presidents, Prof. E. F. Ladd, of Fargo, North Dakota, and E. W. Burke, of Evanston, Wyoming, the Secretary of the Association, R. M. Allen of Lexington, Kentucky, called the meeting to order as follows:

MR. ALLEN: In the absence of the President and the Vice-Presidents of this Association, it is my duty to call the Eleventh Annual Convention of the Association of State and National Food and Dairy Departments to order.

We have a long programme, one that it will take prompt attendance to finish. We want to finish each day's programme on time This morning we were to have had an introductory address by Mr. F. J. H. Kracke, of New York, reports of officers and committees, the appointments of committees, beginning this afternoon with the regular programme.

Mr. Ankeney, the President of this Association, being no longer in office, thought there was possibly some doubt as to his being qualified to preside, and also on account of illness in his family was not able to come. Prof. Ladd, of North Dakota, First Vice-President, will preside in his stead when we meet this afternoon at 2 o'clock. Until which time the meeting is adjourned.

Adjourned.

Tuesday afternoon, July 16th, 2 P.M.

Meeting called to order by Vice-President Ladd.

VICE-PRESIDENT LADD: It is now time that the Convention come to order. Unfortunately some of those we expected to be here to-day are absent. The President of the Association was to have given us an address, but he is not here, and others are not present. Therefore the first thing on the programme will be the report of the Executive Committee.

REPORT OF THE EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held at the Great Northern Hotel, Chicago, Illinois, Monday, April the first, with Messrs. Ankeney, Emery, and Allen present, and Vice-President H. E. Schuknecht instructed by proxies to act for and in behalf of J. B. Noble and F. J. H. Kracke.

The Committee first considered the question of the time and meeting-place for the Eleventh Annual Convention of the Association. A personal invitation was extended to meet at Niagara Falls, and invitations from Colorado, Put-in-Bay, and North Carolina were considered. After looking into the question of rates and the wishes of a majority of the members of the Association, especially the Western members, the invitation from the Jamestown Exposition was accepted, and the date fixed for July 16–19.

The Committee then made a draught of the programme, which the Secretary was instructed to complete and submit to the members by mail for further suggestions.

On motion, Mr. H. E. Schuknecht was appointed a committeeman on transportation.

During the fall of 1906, President Ankeney and the Secretary had an informal conference in Cincinnati regarding the publication of the journal of proceedings. The proceedings of the 1906 Convention were turned over to the President, and after securing the indorsement of the other members of the Executive Committee, a contract was made with Messrs. John Wiley and Sons, New York, for the publication of the journal of the proceedings.

During the year interest in the Association's work has been kept up, and some 700 letters have been written to members of organizations, manufacturers, and others interested in the Association's work, besides the sending out of circulars regarding the programme and notices of the meeting to members of the Association. I believe that in addition to our annual report a small pamphlet giving the names of the officials, together with the purposes and objects of the Association, should be issued, and revised from time to time, for distribution to those who write for information of this kind.

At the time the Appropriation Bill for the United States Department of Agriculture was pending before the last Congress, an amendment was introduced and passed in the House to the effect that none of the appropriation for enforcing the National Foods and Drugs Act could be used by the Department of Agriculture in the employment of State food-control officials. The error of such an amendment was so plain that the Secretary at once asked the People's Lobby to bring the matter to the attention of the friends of the Pure-Food Bill in the Senate, and this, together with the appeal from the National Consumers' League, caused the amendment to be struck out.

The National pure-food law has a provision requiring district attorneys to prosecute upon information filed by a State food-control or State health official, and for the purposes of such prosecution the officials would, of course, be summoned as witnesses, and their expenses for such attendance would be allowed by the courts. But in the matter of executive or scientific co-operation so necessary to bring about uniformity between the States and the Federal Government, there is no provision made by the States to meet the expenses of some of these State officials whose abilities will be needed by the Department of Agriculture in its new work.

And for this reason the amendment seemed to be such as would hamper the uniformity which the success of pure-food work demands to be established between Federal and State workers.

VICE-PRESIDENT LADD: We have heard the report of the Executive Committee. A motion is in order to accept the report.

It was moved and carried that the report of the Executive Committee as read by the Secretary be accepted.

VICE-PRESIDENT LADD: The Standard Committee will not be called until Friday. I believe that concludes the reports of committees, and we will go on with the programme. The first topic we have is "Publicity in the Enforcement of Pure Food Laws," by Hon. Edward K. Slater, Commissioner, Dairy and Food Department, St. Paul, Minnesota. Is Commissioner Slater present?

MR. MCCABE, of Minnesota: Mr. Slater requested me to read his paper in his absence.

PUBLICITY IN THE ENFORCEMENT OF PURE-FOOD LAWS

By Hon. Edward K. Slater, State Dairy and Food Commissioner of Minnesota.

One of the most effectual weapons in the hands of a dairy and food department is publicity. The work of a dairy and food department vitally interests every man, woman, and child in the State. If it were not for this fact it would not be necessary to employ publicity in order to do effectual work.

While a food law only directly affects dealers in food products, every citizen of the State is vitally concerned with results obtained through the enforcement of that law.

The proper enforcement of a food law depends upon the police authority enjoying the hearty co-operation of those engaged in commerce in foodstuffs in the State. This co-operation can be obtained only through an active interest in the question of pure foods, and the only way to arouse the interest of those who are engaged in the business is through publicity.

The Minnesota Dairy and Food Department has followed the plan of issuing bulletins which have been sent to the newspapers of the State. These bulletins have not consisted of a detailed report of the laboratory analyses, but, on the contrary, have been made as readable as possible, so that the layman might understand something about the work of the department. We have realized the fact that in order to induce the newspaper publisher to give our bulletins free space in his paper, it was necessary to issue something that would be interesting as well as instructive. The results gained from this sort of a campaign have exceeded our fondest expectations, and it is our intention to enlarge upon this branch of the work in the future.

Never before in our history has the pure-food question received so much attention as during the past two years. Magazine and editorial writers have vied with each other in furnishing the reading public with figures and facts regarding the pure-food question. Lecturers and statesmen have devoted more time to its discussion, perhaps, than in the twenty years previous. It has been talked over at clubs, public gatherings, and around the fireside.

Even the men with the "muck rake" have had their turn at denouncing the purveyors and adulterators who have been waxing fat at the expense of the consumers' stomach and pocket-book.

Such discussion and publicity are bearing fruit, and nothing can now prevent the growth of the sentiment which has been aroused in favor of legislation and its strict enforcement, which will eventually drive dishonest dealers out of the business entirely in every State in the Union.

As a rule, the producer of any article of commerce aims to produce what the consumer calls for. Further than this, many producers will produce just as poor an article as the consumer will be satisfied with. The consumers of this country have been encouraging the dishonest producers of food products by holding out the greatest temptation they could possibly have tendered them. What is this? Simply the entire lack of interest they have displayed in the great question for lo these many years.

Can any one successfully dispute the assertion that the agitation which the life-insurance question has received lately will result in more careful and systematic conduct of life-insurance companies? It can have no other result. Will not the investigation of campaign contributions by interested corporations result in partially purifying campaign funds? It certainly must. And, again, will not the result of the "muck rake" as applied to the packing-house industry be for good? It has already resulted in National legislation which is calculated to revolutionize the whole business.

What is the secret? It is simply publicity. The perpetrator of a wrong fears publicity worse than any other weapon known to man. This applies as well to corporations as to individuals, and the more prominent the victim the greater the punishment. The greatest fear which the producer who is defrauding his customer can possibly entertain is the fear that something may occur which will inform his victim and his intended victims as to the conduct of his business. Such information can reach them effectually only through publicity, and the battle is already on. The weapon of publicity as applied to the pure-food question has been generally taken advantage of only during the past few months, and now that such handsome results are already apparent, this weapon will undoubtedly be continually used in the future.

As an illustration of the effect of publicity in the work of enforcing pure-food legislation, it is well to call attention to a case which came under this commission's direction and observation during the past few months. An outside manufacturer of spices flooded the State with spices which were guaranteed to be absolutely pure. The price should have been an indication to jobbers and retailers that the goods were of inferior quality, but many caught at the bait. Samples of these spices were analyzed, and bulletins sent broadcast over the State warning dealers and consumers as to the quality of the goods. The manufacturer refused to stand by his guarantee and has, it is believed, shunned the State since. He ventured the information, through a communication, that his firm did not wish to do business in a State where the department used such methods in carrying on the work. Attention is merely called to this one case to demonstrate the power for good in the plan of publicity in dealing with dishonest food manufacturers.

People who have heretofore given the question of purity in our food products little or no thought whatever are beginning to take interest in the question. They have heretofore accepted whatever the producer has tendered them, and have asked no questions, relying entirely upon the honesty of the many men who, perhaps, have been interested in getting the product into their hands.

Consumers of food products in Minnesota are acquiring the habit of asking the men from whom they purchase their food supplies regarding the purity and wholesomeness of the goods they are buying. They are acquiring the habit of examining the labels on packages of food products in order to learn the quality of goods and in order to ascertain if they have received the quality they have paid for. They know that the State law prohibits misstatements on the labels.

The increasing interest on the part of consumers is one of the hopeful signs of the times as applied to this question. Retailers who have heretofore evidenced little or no interest in the question have been forced to give it more thought. Every retailer depends upon the satisfaction of his customers for success in business, and when they begin to take interest in the question of pure foods, and the correct labelling of packages, he must give it more attention.

When the consumer will be satisfied only with a "square deal," the retailer must furnish him with this kind. He becomes more insistent with his jobber, and the jobber in turn is compelled to watch his labels more carefully and to insist upon purity from the manufacturer.

Vice-President Ladd: The next paper on the programme is an address by Dr. H. W. Wiley, Chief of the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C., on "Co-operation between Federal and State Authorities." Dr. Wiley, however, is not present. Is there any one here delegated to speak for him?

No one was so delegated.

Vice-President Ladd: Then in his absence we will pass to the next number on our programme, which is "Co-operation between the State and Federal Authorities," by Hon. A. H. Jones, State Food Commissioner, Chicago, Illinois.

CO-OPERATION BETWEEN THE STATE AND FEDERAL AUTHORITIES

By Hon. A. H. JONES, State Food Commissioner of Illinois.

MR. PRESIDENT and Members of the National Association of State Dairy and Food Departments: This is the commercial age, the age of trusts and combinations of individuals and capital to carry on great enterprises.

The world has never seen anything like it. As a people we boastfully point to the great things we have accomplished in mechanics, in chemistry, in physics; indeed, in all branches of science and art.

The mysterious power of electricity has been brought within such control that you can stand on these Exposition grounds and converse with all parts of the civilized world, although only a little while ago weeks or months were required to carry these same messages. We never tire of such comparisons. We may continue them for hours because the material is all around us, and yet with all these evidences in sight we find it nearly impossible to secure the kind of legislation, in the different States of the Union, as well as by Congress for the National Government, that will regulate and control the manufacture and sale of all food products.

For promoting legislation and securing unity of action along these lines the National Association of State Dairy and Food Departments was organized and these annual meetings have been held, and I want to congratulate the officers and members of this Association at this the eleventh meeting on the work accomplished.

This Association was organized not only for the purpose of obtaining National and State food laws regulating the manufacture and sale of food products, but of securing uniformity and harmony of action, and in order to do this it sought to bring about the closest cooperation and harmony of action between the States and the National Government in the enforcement of pure-food laws, to the end that a system of pure-food legislation be created in the States, under their police powers, and by the National Congress under power given to regulate interstate commerce; and it was necessary to have this harmony of action, not only between the States, but between the States and the National Government as well, in order that there might be no conflict of authority, and to the end that the joint knowledge and experience of State and Federal officials may be brought to bear in the consideration of the technical and practical questions arising in the enforcement of these food laws.

The objects of National and State food laws are threefold: first, to protect the ignorant consumer from injury and fraud; second, to foster and protect the industries of our country; third, to put competing manufacturers, packers, and jobbers on an equal footing. In order to fulfil these objects, it is necessary to have stringent food laws so draughted that there may be uniformity in labels, standards, and brands as to all food products, and also that there may be the fullest harmony of action between the State and National food officials.

Food is, next to air, the greatest necessity of life, and the study of the wholesomeness or unwholesomeness of the various kinds of foods adapted to human existence, their relations to the need of the human body, their influence on the life and health of the individual, their quality, their strength, their purity, or freedom from matters foreign and injurious to health, and the proper food ingredients for a stable ration, is one of the essential studies in connection with the enactment of pure-food laws and their proper enforcement.

When we reflect that the whole human family is dependent on the food product; that it is engaged in a struggle for it; that the condition of humanity depends upon the quality of its food, and that a people is prepared for this struggle for existence in proportion as its food products are kept pure and wholesome: that we can tell the standard and character of a people by the wholesomeness and purity of its food products, by the food it eats

—we can then see, and understand, how necessary it is to have a pure and wholesome food product, a stable ration, and wise and wholesome food laws, and officers authorized to enforce them, and have them rigidly enforced, thus guarding the people, and protecting them from the manufacturers and dealers in impure and unwholesome foods and food products.

Pure-food laws, therefore, teach us how to protect ourselves against impure, unwholesome, and falsely labelled food and drink which are put upon the market through ignorance, neglect, or dishonest desire for illicit gain.

The adulteration and falsification of alimentary products is by no means an invention of modern times; it has always been practised, as the citation of ancient recorded cases prove. We learn from these that in past ages adulteration of foods and drink were punished, not only by fine and imprisonment, but with more humiliating penalties, and to expiate their infamy the adulterators of food were often compelled to wear, in public, a placard with the announcement, "Falsifier," or something similar, written in conspicuous characters.

When, as in ages past, alimentary products were grown and manufactured by the consumer himself, or the consumer bought direct from the farmers the raw materials, such as grain, meats, fruits, etc., and prepared the foods himself, he was certain, or at any rate had greater security, that he was consuming the pure article. With these principles involved food legislation in this country—National and State—has identified itself.

Congress in 1906 passed the National Food and Drug Law, modelled along these lines, providing for the proper labelling of all food products, and that all food products should be so manufactured and prepared that the purchaser might know, from the label, that they were properly prepared and were wholesome and not injurious to the health; also providing a system of food inspection and analysis; and the legislatures of the different States are taking up this food question, and passing laws in harmony with this new National food law; and it affords me great pleasure to say that the State I have the honor to represent is not behind in this work, that Illinois is one of the first States in the Union to take up the work of co-operation with the National food authorities, and to secure the enactment of a pure-food law modelled upon the new National food law; that our present General Assembly is not behind the legislature of any other State in the Union in food legislation—it took up the question of food legislation as soon as the National food law was passed, and revised the Illinois State Food Law along the lines of the new National food law. It is a model law, and the approval of the Illinois food law by Governor Deneen will give Illinois, in my opinion, the best food law of any State in the Union.

It is, therefore, only since the passage of this National food law by Congress, and the revision of the State food laws by the legislatures of the various States of the Union, that there could be co-operation between National and State food authorities. Now that we have National and State food laws, modelled along the same lines and in harmony, we can have uniformity in labels, standards, and rulings for the various food products of our country, and no more will the honest manufacturer be bothered by State lines, for when he has his foods prepared, labelled, and sold in conformity with the requirements of the National law it will then meet with the requirements of the State food laws of the different States, and he will not, as in the past, have to keep a supply of labels to meet the requirements of the National food law, and also a different set of labels in order to meet the requirements of the food laws of the different States in which he may desire to sell food products.

The proper labelling of all food products is especially provided for, and a commission to fix standards is also provided for, and the National and State food authorities are empowered to make rulings and regulations controlling the preparation, manufacture, and sale, as well as the proper labelling, of all articles of food. The State food authorities have not only the authority to provide for the proper labelling of food products within the State, but also to make requirements in regard to goods coming across the border line of the State, and this co-operation of the food authorities, of the Nation and the States, and the agreement as to standards and labels, in regard to foods coming across the border line of the State, under the Interstate Commerce Law, will simplify the work very much and make it more effective, as it gives the National and State food officials authority to co-operate, without regard to State lines, as to the question of violating interstate commerce laws.

Under the provisions of these new laws—National and State—the work of enforcing the laws has been greatly helped, and the food departments have been strengthened by increasing the number of inspectors and chemists and by additional funds for carrying on the work of inspection and analysis, and prosecution of violators of the law.

The Guaranty Clause is only one of the many sections that is novel in our new National and State food laws, and the addition of this section will make manufacturers more careful.

The creation of a "Food Standard Committee" for the purpose of determining and adopting standards of quality, strength, and purity for the various food products is a new provision, as heretofore there have been no standards fixed in the law for food products, nor any authority provided for making them. This lack of standards has, in the past, placed food officials at great disadvantage; it has placed the burden of proof, in prosecutions for violations of the law, upon the officers appointed to enforce the law; and each case has to be proven by expert testimony as if no other has ever been tried. The uncertainty of conditions due to these facts weakened the law, and made it hard to convict, and encouraged violators of the law to continue their transgressions.

Now, under our new National and State food laws, we will have standards for such articles of foods, and the discovery of fraud in foods, and the evidence of same, will simply mean a question of analysis and comparison of samples with the standards as fixed by these laws.

Under these new food laws—National and State—and the standards and labels prepared under them, our manufacturers, dealers, and food officials, as well as the consumers of these various food products, will be equally and fully informed as to the precise requirements in the composition of all articles of food, as well as the manner in which they should be prepared, labelled and sold; thus much unnecessary and costly litigation will be avoided.

This necessity for standards and labels for all food products, and for co-operation in making and enforcing these regulations in regard to them, is due to the fact that, in the competition in trade which exists in all food products, unscrupulous manufacturers and dealers are placing inferior goods upon the markets, without notice of their adulterations, to the great injury of the public, as respects both health and value.

I regard these provisions for food standards and labels, for all food products, as of vast importance, and that they will strengthen the laws—State and National—and aid in their enforcement very materially.

The manufacturers, packers, and jobbers and trade interests generally, as a general proposition, are in favor of an honest label—one which defines, to the consumer, the true character of the article it covers. There is a minority that claims that when once a food product is admitted to be pure and wholesome, it should not come under the jurisdiction of a food law, and should be sold as any other article of merchandise; and also, that when a food law undertakes to protect the people from fraud and deception, it is going beyond the question of pure food. This position is untenable, as an impure and unwholesome food product undermines the health of the people and thus affects the welfare of the Nation, which is not the case with other sorts of merchandise.

The fundamental principle is that every consumer is entitled to choose as to the kind and quality of the food offered for sale. For example, whether he shall receive honey, when desiring to purchase that article, or a mixture of honey and glucose; absolutely pure fruit jelly, or some questionable imitation; and this comparison is equally applicable and true as applied to all foods and food products.

The most important effects of food laws—National and State—upon the manufacturers and packers are that these are forced to make the public familiar with their foods. The agitation over the country for "pure foods" has aroused the public thoroughly for the first time to the paramount importance of finding out what it eats; as in every revolution there is violent reaction and a state of chaos before the reforms aimed at are secured, so in the present "pure-food movement" the ultimate results have not yet been achieved.

With the agitation for "pure food" and the consequent legislation—State and National—the consumer has learned for the first time of hundreds of adulterations and cases of mislabelling which he never before dreamed of; the first result of this was, of course, to make him suspicious of every can or package of food. He has heard of coal-tar dyes, benzoate of soda, sulphate of copper, salicylic acid, formaldehyde, and a score of other things that are used to "dope" the various food products, until he has come to believe that there is no manufacturer who does not use some drug or adulterant in his food products. It, of course, makes no difference that there are thousands of honest manufacturers of foods, whose food products have always answered in every way to these new food laws. At present the consumer does not believe this, and, for the next few years at least, the most important work of those manufacturers who shall be able to hold their trade in the markets, will be to make the consumer of their food products believe in the purity of their goods and that they are properly prepared and labelled. Many manufacturers are slow to recognize the fact that at present the public is suspicious of all food products.

It is hard to make the individual or corporation that has been manufacturing a standard brand and putting it on the market for a quarter of a century or more understand that on a sudden his customers would become suspicious of him. Yet this is precisely the condition at the present time. The honest manufacturer, who knows that his goods have always been up to standard and meet the requirements of law, cannot believe that customers of twenty-five years' standing would doubt him, but he must remember that in any great reform movement the honest man is at first likely to be classed with the dishonest by the public at large which is ignorant of true conditions.

At such a time as this, when the good housewife who buys for the household has become suspicious of all brands because of what she has read in the newspapers and magazines, as well as in the bulletins and reports of the State and National food authorities, of adulterated and poisonous foods, it is up to the honest and wise manufacturer to seize every means in his power of assuring her of the excellence of his goods, and re-establishing them with her.

The public can make its influence felt in another way: it can patronize those manufacturers and dealers who have honorably distinguished themselves by a strict compliance with these laws. It can insist on getting its food products only from honest dealers or manufacturers. It can decline to receive substitutes of questionable quality or that are not plainly and intelligently labelled. It will thus make it to the interest and advantage of the manufacturer or dealer properly to prepare and turn out the right kind of food. If the public would follow this rule, there would be a reformation at once in the food markets of the Nation.

Under the National Food Law passed by Congress, and which became a law June 30, 1906, and became effective January 1, 1907, Congress empowered the heads of three important branches of our Government—the Department of Agriculture, the Treasury Department, and the Department of Commerce and Labor—to make rules and regulations to govern the administration of this law and secure its enforcement.

These officials, in turn, publicly invited all parties affected by the law to appear before their representatives in the city of New York, during the week of September 17th to 23d, to explain their views.

It was at these conferences that the two great food-law questions,—"What is a harmful substance?" and "What is a harmful label?"—received the careful and analytical consideration of the largest producers and distributors of foods in this country for the first time in its history.

It was also as a result of these conferences that the policy of the National authorities and officers appointed to enforce the "food laws" was settled, and that co-operation between the National and State food authorities and the food interests and industries of the country was secured.

This policy of co-operation with the Government and with the National food authorities and the food interests and industries of the country to secure reasonable and just interpretation of the law, not revolutionary to the trade interests and standing for pure food truthfully labelled, had important results.

As one result of the hearings before this National Food Commission, the food interests procured an extension until October 1, 1907, to dispose of and use labels on hand which did not misrepresent the contents of cartons or packages.

Another of the important results obtained from the hearings before this Food Commission was the issuance of the regulation which left open for further scientific investigation by the Secretary of Agriculture and the National and State food authorities the determination of the wholesomeness of colors, preservatives, and other substances which have been customarily added to food products, thereby preventing any hasty action in the decision of these questions.

The power of Congress or of State legislatures to make requirements as to the form of label to be used, and fix reasonable standards for the various food products, has been judicially sustained, and all doubts have been settled as to the power of the Government to enforce standards when incorporated into, or made part of the food laws.

It has also become evident that the National Food Law, while not perfect in all its provisions, was, nevertheless, destined to become the model food law, and one after which the various States of the Union might pattern; and decisions under it form the basis for decisions under similar State food laws throughout the Union.

There is a sentiment abroad in the land that the enactment of these National and State food laws will bring about an immediate "pure-food millennium," and I will say to all those who cherish these views that they are likely to meet with disappointment. If the millennium in food products ever arrives, it will come through the same process of all great reforms—by keeping before the people of the Nation and the State the great principles involved, and what has already been accomplished in this struggle for pure food and what is sought to be accomplished. For already the enactment of these laws—National and State—has produced a marked improvement in the manufacture and sale of food products.

It cannot be doubted that with the enforcement of both National and State food laws this improvement will continue in the future, and that adulterated and misbranded food products will be reduced to a minimum; but the people of the State and of the Nation must bear in mind that this "pure-food millennium" can never be brought about except by a unity of action and harmony in the work of enforcing these laws; for food adulteration in this country has become so entrenched that it will take a mighty struggle to suppress it. Neither the National nor the State food laws will, all at once, change man's nature and free him from avarice; and while these elements remain what they are, the struggle for pure food and pure drink is likely to be an everlasting one.

VICE-PRESIDENT LADD: The next topic on the programme is "Co-operation Between State and City Health Authorities," by Dr. Eugene H. Porter, Commissioner of Health, Albany, New York. Dr. Porter is not present and we will ask Dr. W. P. Cutler, General Food Inspector, Board of Health, Kansas City, Missouri, to give us his paper on "Possible Accomplishment by Independent City Action."

POSSIBLE ACCOMPLISHMENT BY INDEPENDENT CITY ACTION.

By W. P. Cutler, M.D., General Food Inspector, Board of Health,
Kansas City, Mo.

Kansas City, U. S. A., has for its motto, "Make Kansas City a Good Place to Live In," and to that end believes, among other things, in a pure-food law honestly and faithfully enforced.

Kansas City is really a dual city, lying in two States, 300,000 population in Missouri and 100,000 in Kansas.

All of the packing-houses where meat is killed are on the Kansas side, and these being under National inspection, leave practically nothing of ante-mortem inspection for the local department. Post-mortem inspection is maintained by the local force on the block in the 611 meat shops on the Missouri side. All inspection work here referred to is in Kansas City, Missouri.

An ordinance was passed last fall which became effective January 1st. This, at the request of the jobber, was made as near a copy of the National law as possible, consistent with local administrative needs. The first section of the local ordinance is a copy of the same section of the National law, except that in the one case the fine is much less and no imprisonment is possible.

Section two of the local law provides that "any person who shall, within the limits of Kansas City, sell or offer for sale or have in his possession for sale in Kansas City any article of food or confectionery which is adulterated or misbranded within the meaning of this ordinance, shall be guilty of a misdemeanor, and for such offence be fined not exceeding one hundred dollars."

It is provided that the examination of specimens of food or confectionery shall be made by the Inspector of Food or under his direction and supervision, and he is required, when any specimen is found to be illegal, to give written notice to the one from whom the sample was obtained. If any person, after such notice, shall violate any of the provisions of this ordinance, then the Inspector of Food shall certify the facts to the City Attorney for prosecution.

Sections six to nine are identical with the National law, and properly so for the reason that the local jobber is not now harassed by a difference between local and National laws, under both of which he has necessarily to act.

The ordinance provides that "whoever offers, exposes, or has in his possession for sale to dealers or consumers in Kansas City, Missouri, any article of food, shall, upon application of the Inspector of Food or his assistant or agent, upon tender of the value thereof, furnish a sample sufficient for the analysis of such food."

"Whoever is convicted of a refusal to sell such sample as provided herein" is to be fined "for such offence not less than five dollars nor more than fifty dollars."

The Department of Food Inspection is composed of a chief inspector and three assistants, together with a city chemist and one assistant.

Two of the assistant inspectors daily secure milk samples from grocers, milk wagons, and dealers, and inspect meat shops, there being no slaughter-houses to inspect, the packing-houses killing the meat consumed in Kansas City.

The other assistant gives his time to the inspection of bakeries, hotels, restaurants, and confectioneries, and all three bring in (by direction of the chief inspector, or if there is any cause for suspicion,) food samples for analysis. These samples are placed in the hands of the city chemist, accompanied by a blank filled out with all the information obtainable. When the result of the examination is known, the chemist reports on this same blank to the chief inspector, who, if the law has been broken, at once serves legal printed notice, setting forth the particulars, on the one from whom the article in question has been received. If after five days steps have not been taken to obey the law, a warrant is sworn out and the offender within the jurisdiction of the city is prosecuted before the police judge. I should have said this would be the procedure, but since January 1st last, when the law went into effect, no prosecution has been necessary, for the reason that the legal notice required by our law gives the offender an opportunity to notify his broker or jobber, who in turn notifies his manufacturer, and the latter furnishes stickers to make the label read right, or has the goods returned to him except where he does not understand what is required, when he sends a representative to Kansas City. For example:

Recently the Food Inspection Department began the investigation of corn starch. Out of ten samples examined, eight were found to contain sulphites.

According to the requirements of the local law, legal notices were mailed to the ones from whom the illegal samples were obtained. In a short time the broker of one manufacturer called up and asked the chief of the Department if he would see the chemist of the concern. This incident illustrates the manner in which the local law operates in getting at the real offender. That is to say: The local dealer is responsible under the law for selling goods not legal, for the reason that the city has no jurisdiction over any one else unless the manufacturer is a local one.

The dealer, on being notified, naturally informs his jobber, who gets in touch with the manufacturer immediately. It is the experience of the local department that the original seller will nearly always send a representative to Kansas City to talk the matter over, and learn of the requirements, which are in accordance with the National law in so far as these latter may be known. When the representative of the manufacturer has had a complete understanding of what is necessary, almost invariably the condition is met and the dealer has no further trouble.

Up to the present time it is proper to remark that in no single instance has it been necessary to prosecute an offender under this portion of the food laws, the prosecutions having been against milk dealers, ice-cream manufacturers, and meat dealers alone under other ordinances. The jobbers have almost uniformly promptly placed themselves in line, one large concern having employed an able chemist who has oversight over all foodstuffs purchased. It is believed that the jobbers are careful to see that their goods are in line with the National law before they are purchased, knowing that they will conform to the local law if this is so.

One evidence that the local law was needed was that one large retail grocer, believing that the local law would not be passed, bought fifteen carloads of canned goods very cheap, which he was compelled, after January 1st last, to provide stickers for. If there had been no local law, these goods would have been salable in Kansas City, as they were received before the National law became effective and all local packers, jobbers, and manufacturers could have continued to sell questionable goods without restraint as long as they did not go out of the city.

Up to the first of last February it is doubtful if 10 per cent of the so-called maple sirup sold in Kansas City was other than adulterated, with no information of this to the consumer; now if a can contains maple and cane sirup or glucose, it says so on the label, and this is true of all other lines, notably extracts, olive oil, and bottled drinks and vinegar.

Coal-tar dyes are not forbidden, but, where used in candies, cards bearing the legend "Some of these candies are colored with coal-tar dye and artificially flavored," the latter words when synthetic flavors are used, are required to be placed in the cases from which candies are sold. Let me remark in passing that it was thought to be a hardship on the manufacturers, and would decrease the sale of their goods, particularly those who handled cheaper goods as well as the better class. And so they rather protested against this requirement, but it was found by one large department store that it did not only not decrease sales, but that it actually increased the sale of the better class of goods. That, of course, is what we want. We want the people to buy the good candy. The Department has endeavored not to be arbitrary, and has made each article of food a study to the end that justice to all might be done. For example, a special law provides that nothing containing sulphites can be sold. Some dried fruits were found to contain this objection, but when the pies made from such dried peaches and raisins were tested no sulphites were found, the conclusion being that the cooking process dispelled the sulphites. The fruit was also stewed with the same result.

As for other details of inspection under ordinances not covered by the law above referred to, it may be remarked that effective work is done by the third assistant in the inspection of bakeries, restaurants, hotels, and candy factories. Of course, one man cannot cover this ground completely, but the work as carried on is very effective. The inspector is an expert baker, and therefore knows what clean linen means as well as where to look for adulterations in cooked food and candies. All earths in candies formerly extensively used for filler and color are no longer used in Kansas City, and more real fruit flavors are used instead of the synthetics.

As an example of the work accomplished by the Department, the following is the report for the month of June:

Meat markets inspected, 716; 218 pounds of beef condemned; 65 pounds of miscellaneous meat condemned; 25 places ordered cleaned; 680 pounds of fish condemned; 348 restaurants, hotels, bakeries, etc., inspected; 16 places ordered cleaned; 10 pounds of dirty candy condemned; 42 crates of berries condemned; 72 crates of peaches condemned; 10 dozen boxes of sardines condemned; 51 heads of cabbage condemned; 382 milk samples secured; 47 arrests made for selling impure milk; 23 samples of food brought in to be analyzed; 6 notices sent out properly to label goods.

When we rule against anything, we pour oil on it. Then they can't use it. So when an inspector goes out to condemn some goods, he looks for the oil can; and, if it's candy he is after, why, then he'll pour oil on the candy. Inspectors are called "Coal Oil Johnnies."

In the matter of milk inspection Kansas City has taken advanced ground. Two men spend the forenoon of each working day securing samples which are brought into the laboratory under seal; these are at once placed in the Babcock, and if any show less than 3 per cent butter fat, the result is verified by Soxhlet extraction, and if still short of the 3-per-cent standard a vigorous prosecution is instituted before the police judge, who has given splendid support in all cases brought by the Department.

Milk inspections cover milk, cream, butter-milk, and ice cream. The ordinance forbids less than 3 per cent butter fat in milk, 14 per cent in cream, and 12 per cent in ice cream. Anything less than 12 per cent in the latter must be labelled ice milk. All preservatives are forbidden, as well as added water. A Zeiss immersion refractometer is used to detect the latter, and the court is very severe on all such offenders. Milk samples are secured not only from the milkman, who lives in the country and cannot be prosecuted except as he is caught in town, the wholesaler who buys wherever he can get his milk, but also from the grocer who is the small distributor usually by the pint or less to the poorer customer. The latter in the belief of the Department needs most protection, since the child of this parent is often dependent on the milk there purchased for food. Most of the cases of added water, shortage in butter fat, and added preservatives are secured from the grocer, small baker, and confectioner. Whether these latter are the real offenders or not, they are the ones fined when their samples are illegal, unless they can show to the satisfaction of the court that the wholesaler or milkman under the jurisdiction of the court is the real offender.

The fine imposed is often paid by the dairyman or wholesaler, or by the man out of town who otherwise could not be reached. It is believed that the one thing needed to make Kansas City the best city to live in in the matter of food, next to an enlarged inspection force, would be to place the Department under civil service.

We believe that the manufacturers and jobbers are earnestly trying to co-operate with us. At first we did meet with more or less antagonism, but now I think I can say that the dealers are doing their utmost to obey the law.

DISCUSSION

Mr. Emery: I would like to ask you one question. You say you examine milk for butter fat; are there any regulations regarding the use of preservatives?

Dr. Cutler: Yes. We examine for preservatives and added water, as well as for butter fat. I do not know of any way to discover unclean milk. The refractometer showed me from 6,200,000 bacteria to the cubic centimetre down to 12,000.

Mr. Emery: What requirement do you make of milk brought in from outside?

Dr. Cutler: Our milk comes from Kansas and Missouri.

Some authorities require a certificate of inspection as to cleanliness. But we never were really satisfied that that properly met the conditions. I believe this matter of getting clean milk is a matter of education. The condensed-milk factories are teaching the people now.

Dr. Gudeman: Dr. Cutler made a reference to candy, and I would like to be allowed to say a few words in regard to the statement he made. Dr. Cutler stated that now there is no earth used in candies in Kansas City. I have been familiar with the work done by the National Confectioners' Association for twenty-four years. They have a standing offer of $100 for the finding and conviction of a case where earth is found in candies. Gentlemen, it is a positive injustice and a hardship to the confectioners of this country to have these statements go out misrepresenting the actual facts of the case. To say that no earth is being used as fillers in candies in Kansas City is making a positive statement that earth is being used in other cities, and I protest against any such statement being made. To let that go by would be a grave injustice to the manufacturers of candy all over this country. I don't believe that a statement should be made; it gives a false impression.

Mr. Emery: I have about reached the conclusion that any remarks about adulteration in any kind of foods is found to be a great hardship and injustice to the producer of these foods, and the best way out of it seems to be that, if we find anything bad in foods, just to say nothing about it.

Dr. Cutler: Earths have been used in Kansas City for color and filler. We have found many cases of such things in the past, and I can prove it. But they don't do it any more.

Vice-President Ladd: They haven't got through using it yet out our way.

Dr. Cutler: Plenty of earth has been used in candy in Kansas City.

Mr. Hoops: As President of the National Confectioners' Association I would like to say that for the last twenty years we have fought the use of earth in candies, and we stand consistently against its use.

Dr. Cutler: Notwithstanding that fact, we know that earth has been used to color candies.

Dr. Gudeman: Oh, I misunderstood your statement then. If you meant that earth had been used in Kansas City for coloring candies, then I ask leave to withdraw my remarks. They do not apply in that case. I understood you to mean that it was "adulterated candy," that the earth was being used as a filler, and that confectioners sanctioned that use. But I withdraw my remarks if you only alluded to earth as a color.

VICE-PRESIDENT LADD: The next topic on the programme is "Food Control Work in the South During the Past Year," by Hon. T. K. Bruner, Secretary Department of Agriculture, Raleigh, North Carolina. Mr. Bruner is not present, and we will pass on to the next paper which is one on "Commissioners' Rulings," by Hon. A. C. Bird, Commissioner Dairy and Food Department, Lansing, Michigan.

COMMISSIONERS' RULINGS

By Hon. A. C. Bird, Commissioner Dairy and Food Department,
Lansing, Michigan.

The great object in the regulation and control of foods and drinks is to protect the consuming public against, first, what may be termed harmful, and, second, what may be termed fraudulent, adulterants or substitutes. Success in this branch of public service, National or State, is measured by the effectiveness with which this protection is secured. From the commissioner's point of view, and it may be fairly assumed from the consumers' point of view as well, all food legislation should be enacted with this thought of effectiveness always in mind. The consumers have a right to demand this much from the law, and the manufacturers and the dealers have no valid claim to any special protection until that point, the point of efficient protection, has been reached. The vital question then is simply this: What is the shortest, safest, and most simple way to effective protection in food regulation and control?

The three factors entering into this problem are: the written law, the interest of the consuming public, and the administration of the department at the hands of the commissioner. Each is an essential element, and the three are mutually interdependent. Through an interesting evolution of events, the second of these, that of the interest of the consuming public, is now at nearly as high a stage of development as should be expected among our people and for the purposes of this discussion need not again be referred to. The first and the last, however, the law and the commissioner, and their proper relation the one to the other, are the essential and yet the varying factors of this great problem of efficiency in the regulation and control of the food supply of our people, and as such they are deserving of our best consideration.

Were these two factors—the law and the administration of the law—constant in their relation toward each other, the problem would be rather simple. But the fact that, in the natural progress of events, new conditions arise with the dawn of each new day renders it imperative, if effectiveness shall be perpetuated, that somewhere there be established sufficient flexibility, supported by ample discretionary power, to adapt the plain, general intent of the law to these new conditions. And it is this necessity, the necessity produced by constantly changing conditions, which has forced upon the commissioners the exercise of that power of broad and liberal interpretation of the written law known and set forth as commissioners' or department rulings.

It is this power exercised by the commissioner which makes workable and which makes practical the written law, and without it and its exercise efficiency would be only the matter of the moment,, soon to become the victim of the dishonest manufacturer or the dishonest dealer. That commissioner who most promptly, most judiciously, and most firmly exercises this power will most successfully accomplish the task set for him to do. And it is in defence of the broadest exercise of this power of the commissioners to interpret the written law—yes, if necessity demands, even temporarily to supplement the written law—that I am here to-day. Effectiveness of administration demands the exercise of this power, and the courts ever stand ready to check its abuse.

This position makes quite necessary a brief discussion of the law and the real mission of the law as applied to the work of the commissioner. In speaking of the law and its mission it will be my earnest endeavor to keep in mind the manufacturer and the dealer, as well as the consumer and the administrative commissioner.

I believe that food law to be most effective which confers its powers in the most general terms, and relies upon the good judgment, the honesty of purpose, and the comprehension of the commissioner upon whom it confers its power for detailed application. To illustrate: I had rather trust in the efficiency of, and I believe the public would be protected better by, a law which prescribes that "Whenever it shall be determined by the Food Commissioner that filthy or unsanitary conditions exist in the operation of any bakery, confectionery, ice-cream plant, or in any place where food or drink products are manufactured, stored, deposited, or sold for any purpose whatever," etc., than in and by a law which attempts to describe either what should or what should not be considered unsanitary or filthy conditions. I had rather trust for efficiency to a statutory requirement of general purity than to a specific formula which, while possibly resulting in uniformity of strength, permits the introduction of diluting elements for the purpose of reducing the strength to the standard required, but the introduction of which so complicates the work of the analyst that the nature and source of the original and essential ingredients are left uncertain. In other words, that food law is best adapted to the requirements of efficient administration which demands least in detail and most in general, and which leaves the adaption of the general requirements to the commissioner's rulings.

My chief reason for taking this position is that conditions of administration are continually changing. That law which is specific in detail must be applied to, and enforced upon the honest and progressive manufacturer, as well as to and upon the dishonest. While it may not work any unreasonable hardship at the time of its enactment, new conditions may arise at any moment which make absolutely necessary a modification of its requirements. Food laws are the creations of legislative bodies, and when specifically mandatory in detail, they may long demonstrate their inefficiency to protect the power which creates, has the opportunity or, more aptly stated, embraces the opportunity to amend or repeal them. On the other hand, the commissioner, by rulings, by interpretations, even by supplementary applications of the general principles of the law, is enabled at all times to make operative and effective the real intent of the lawmaking body. Given a broad, general food law, upon which the department is established, and a thoroughly equipped commissioner to determine its application through definite and explicit rulings or interpretations, and you have an administration effective in its protection to the consumer and to the honest manufacturer and dealer as well.

I shall not here discuss the thoroughly equipped commissioner except to answer the possible objection of the honest manufacturer or dealer who fears that food commissioners in general do not have a proper conception of the manufacturers' and dealers' point of view. My answer to that possibly raised objection is based upon my personal experience, both as a business man and manufacturer and as a public official as well. For a good many years before assuming the duties of my present official position I was engaged in manufacturing, though not of food products. I have continually added to my manufacturing interests until at the present time, outside of my official duties as Dairy and Food Commissioner, my life is that of a manufacturer in the city in which I live. And it is my every-day contact with the owners and managers of more than one hundred manufacturing plants aside from my own, some of them engaged in the production of foods and drinks, that leads me to feel that I can speak somewhat authoritatively in what I am about to say.

There is no doubt but the average manufacturer is decidedly suspicious of the business comprehension of the average public official, especially in so far as that public official has to do with the particular line of business of such manufacturer. On the other hand, the average manufacturer is a man of broad attainments and of open mind who warmly welcomes any and all evidence that he is mistaken in his estimate of the public official.

As applied to those at present in control of food regulations, that this suspicion exists at all I believe to be due largely to the fact that the manufacturer and the official do not know each other as they ought; and for this condition I believe the average commissioner is more to be blamed than are the manufacturers. The thoroughly equipped commissioner ought, if necessary, to force himself and his work upon the manufacturer and the dealer. He should demonstrate to them that he does understand their side of the questions involved, and, above all, he should convince them that in so far as the effect of the new department or commissioner's rulings upon their business is concerned, he is even a better judge than are they. This is not so difficult as at first would seem, for it is only natural that the properly equipped commissioner who is constantly giving his best thought to the proper relation between his department, the public, the manufacturer, and the trade should be the better judge of the two, and when this fact is presented in its proper light the manufacturer is not slow to recognize the fact.

From a personal point of view the chief delight of my administration of the Dairy and Food Department of the State of Michigan, is the ease with which I am able to convince the honest manufacturer of, and the jobber, in food products that my judgment as to the effect of new administrative policies upon their markets is better than their own. By this simple means of getting into close personal contact with those whose greatest business interests are along the lines of the production and the marketing of foods, I have without exception, so far as I have been able to determine, secured for the Department the active co-operation of every honest manufacturer and dealer in the new departures which have been made.

The manufacturers and the dealers will be the first to recognize business comprehension in the commissioner, and with that recognition their suspicions are soon forgotten. It is one of the most important duties of the commissioner as speedily as possible to convince all those interested in reputable production of, and trade in, food products that in him and in his department they have a most appreciative, a most comprehending, a most powerful, and a most efficient friend. When this relationship of mutual confidence is established, the administration of the department is a long way on the road to success, for the support of the honest business interests is no small factor in waging war against the dishonest; and with the gaining of their confidence and their support there will be removed the strongest of the opposition to general legislation and freedom of department interpretation. When this is accomplished there will be removed much of the merit in the demand for uniformity of food laws. Uniformity, in my opinion, is a consideration that belongs more properly at the resulting end of food regulation than at the law-enacting beginning. How to secure uniform results, rather than the adoption of uniform methods, is the real problem before us, and the liberal use of discretionary power in the interpretation of the general statute by the individual commissioner, in accordance with the conditions with which he is surrounded—that, and that alone, will secure such uniformity.

The tendency of the courts, State and Federal, seems to be toward recognizing the right and the propriety of delegating detailed legislative power. The hands of the administrators of law are being consistently upheld in their exercise of discretionary power, and this fact of itself speaks well for the new policy of legislative bodies to transfer or delegate the responsibility for details to administrative shoulders.

In other words, department or commissioner's rulings are but the application of the general principles of statutory enactment to the specific problems confronting us day by day in our work. Your problem of to-morrow may or may not be what you anticipate, but one thing is certain: it will not be mine, nor will mine be yours, and it is only by exercising the widest freedom of interpretation of the law under which we are working that these constantly changing conditions can be met.

Ours is the same problem that confronts the business man in the control of the conditions which surround him, and we ask for and require the same opportunity for initiative, the same latitude for the exercise of our judgment that is demanded by him and that is unquestionably accorded him by his associates. It is the exercise of this power, and that alone, that develops in the commissioner that comprehension of business requirements and business conditions which is so properly demanded by the manufacturers and by the trade in general. It is the commissioner's opportunity to broaden himself and keep in touch with, and to be recognized as a factor in, the business world, and he who exercises it most freely and most wisely will, other things being equal, accomplish most.

DISCUSSION.

Mr. Emery: I would like to ask Commissioner Bird one or two questions. I am not sure that I clearly understand his meaning. For instance, as I understand it, Michigan has a special law on sirups. Do you think, Mr. Bird, that a general law would be better for the public than a special law of this kind?

Mr. Bird: If a general law would be as effective, I should say yes. But I would rather have a special law on that subject.

Mr. Emery: Is it your thought that the commissioner, in the interpretation of a statute, may differ from what he thinks the courts would hold as to that statute?

Mr. Bird: I would rather not depend on doing that. I have never yet fixed a ruling which I thought the courts would not sustain. I can imagine that conditions might arise where I would have my doubts as to a ruling holding in the courts on some special section of the Michigan law, but if the legislature were to be convened in ample time to protect me, I would take the risk.

Mr. Emery: That isn't just what I meant. The question is whether or not a food commissioner should make a ruling on a law that he thought the courts would differ from.

Mr. Bird: Certainly not. But there is the tendency among business men constantly to ask questions as "What is this?" and "What is that?" and they are always asking for definitions and the requirements respecting this and that substance. Sometimes broad interpretations are necessary, but I am encouraged to feel that manufacturers and dealers are getting into a more favorable attitude toward the Department and are co-operating with us in trying earnestly to better conditions in the trade. My method of interpreting the law is never to forget the absolute English of the particular requirement, but also to consider the probable intent of the general act by the absolute wording to these individual conditions as they arise. Never yet have I failed to be sustained by the courts.

Vice-President Ladd: We will go on with the programme now, and have the paper on "Port Inspection Work," by Prof. R. E. Doolittle, Chief of New York Laboratory, U. S. Department of Agriculture.

REVIEW OF PORT INSPECTION WORK

By R. E. DOOLITTLE, Chief of New York Laboratory, U. S. Department of Agriculture.

SECTION ELEVEN of the Food and Drugs Act, June 30, 1906, provides that:

"The Secretary of the Treasury shall deliver to the Secretary of Agriculture, upon his request from time to time, samples of foods and drugs which are being imported into the United States or offered for import, giving notice thereof to the owner or consignee, who may appear before the Secretary of Agriculture, and have the right to introduce testimony, and if it appear from the examination of such samples that any article of food or drug offered to be imported into the United States is adulterated or misbranded within the meaning of this Act, or is otherwise dangerous to the health of the people of the United States, or is of a kind forbidden entry into, or forbidden to be sold or restricted in sale in the country in which it is made or from which it is exported, or is otherwise falsely labelled in any respect, the said article shall be refused admission, and the Secretary of the Treasury shall refuse delivery to the consignee and shall cause the destruction of any goods refused delivery which shall not be exported by the consignee within three months from the date of notice of such refusal under such regulations as the Secretary of the Treasury may prescribe."

It is by the authority conferred upon the Secretary of Agriculture by this section of the Food and Drugs Act that the inspection of food and drug products offered for import into the United States is carried on. Prior to the enactment of the Food and Drugs Act the Secretary of Agriculture was vested with authority for the inspection of these products by a similar clause in the Appropriation Act for the Department of Agriculture. This clause was first made a part of the Appropriation Act on March 3, 1903, and the development of this branch of Government regulation of the food supply of the country is of considerable interest to those interested in the problem of food adulteration and its control. The importance of this inspection is at once recognized when we consider the amount and value of the imported food products. A statement of these facts in figures expressing the number of cases imported annually or their value in dollars and cents does not appeal to us so much as does perhaps the fact that these products are found in every grocery store in our land and form a part of our every-day meals. They are no longer confined to the spices, teas, coffees, fruits, etc., not produced in our own country, but also include such manufactured food products as preserves, jams, meat products, canned vegetables, flours, etc., similar to those that are produced in this country and which enter into competition with those of domestic production. In addition to this, we have in this country a great foreign population which still obtain from their home countries not only the delicacies of food and drink, but also to a great extent those food products generally classed as necessities of life. As examples of these, we may state that there were imported into this country during the past year over a million cases of canned tomatoes, an equal number of tomato paste (tomatoes evaporated to a paste-like consistency), and as many more cases of other canned vegetables. These products are, however, no longer confined to our foreign population, but more and more each year enter into general consumption, especially through the hotel and restaurant trade. This holds true throughout the whole list of imported food products, whether luxuries or necessities. The amount of food products annually brought into this country from abroad is almost startling to one not acquainted with the import trade.

When we come to the question of drugs it is a well-known fact that the great bulk of crude drugs is imported. We have but to enumerate the principal drugs and essential oils to show that practically all are of foreign production.

It certainly was a well-conceived plan that began the Federal control of the sale of food and drug products in this country by the enactment of a law providing for the inspection of imported products, and I believe Congress builded even better than it knew when it inserted the little clause in the Appropriation Act for the Department of Agriculture for the inspection of this class of products. What a satisfaction it must be to those who secured this legislation to have seen it grow to a National law covering both domestic and foreign food products!

The development of the work for the enforcement of these laws shows a corresponding increase. The Act providing for the inspection of imported products was first passed with the Appropriation Act of March 3, 1903. This went into effect July 1, 1903, and for the reason that the Bureau of Chemistry, in which was vested the authority for the enforcement of the Act, had already spent several years investigating the adulteration of foods and drugs and the methods for their detection, it was prepared at once to enforce the Act. During the first year all analyses and other work in connection with the enforcement of the law were carried on at the Bureau of Chemistry at the Washington office, with very little increase in the force of the bureau; but as Washington is at considerable distance from the principal ports of entry in this country, the delay in transmission of samples and correspondence so inconvenienced the work of the customs officials that it was decided to establish branch laboratories at the principal ports of entry. This was begun in the second year of the existence of the Inspection Act, and the first branch laboratory was opened at the city of New York in October, 1904, with a force of three chemists and a sufficient number of helpers and clerks. This change in the manner of the enforcement of the law necessitated the development of a new system of inspection, the details of which were given in my address before the Association at Hartford last year.* Following the establishment of the New York Laboratory, laboratories were opened at Boston, Philadelphia, Chicago, San Francisco, and New Orleans during the year 1905, and the force of the other laboratories was materially increased. With the enactment of the Food and Drugs Act, which went into effect January 1, 1907, arrangements were at once made to open several more of the branch laboratories to do the analytical work for both domestic and imported products. In addition to the laboratories already mentioned, another has been recently opened at St. Paul, and others are in the process of construction or equipment at Buffalo, Detroit, Kansas City, Denver, Savannah, Cincinnati, Galveston, Portland, and Seattle, while negotiations are being made for the location of three or four more in those parts of the country not already covered, thus eventually giving about twenty branch laboratories to do the analytical work in connection with the enforcement of the Food and Drugs Act. Besides these laboratories, arrangements have been made with some of the chemists employed in State food departments for doing analytical work for the Bureau of Chemistry. Thus we find the Bureau of Chemistry, since the enactment of the clause providing for the inspection of imported foods in the Appropriation Act for 1903, increased from a single laboratory at Washington to a large organization with branch laboratories at all the principal points of distribution of food and drug products in the United States, and employing a force of inspectors sufficiently large to cover the whole country.

---

*Association of State & National Food and Dairy Departments, Hartford Convention, 1906, page 215.

The port inspection work for the fiscal year ending June 30, 1907, may be briefly summarized as follows:

Approximately 110,000 invoices of food products have been examined by the inspecting officers; 4,931 samples have been submitted to chemical examination in the laboratories; 28,137 cases of food products have been examined on the inspecting floors of the customs examiners, from which no samples were taken and invoices not detained for the reason that these goods were known from previous examinations or corrections in labels to be in compliance with the law. Of the 4,931 samples submitted to chemical examination, 3,718 were found to comply with the law and 1,213 to violate its provisions. Of the 1,213 shipments found to be in violation of the law, 171 were required to be re-shipped beyond the jurisdiction of the United States or to be destroyed, 177 were admitted after the labels were corrected to meet the requirements of the Act, and 865 were released on final hearing without prejudice to future decisions by the Department in similar instances.

It is, however, difficult to express satisfactorily in figures or in words what has really been accomplished during the year. You who have had experience in city and State food laws can well appreciate this. It is not always the number of samples analyzed, or even the number of cases successfully prosecuted, that represent the best-enforced laws. There are many conditions relating to the laws, the locality, and the men charged with the enforcement of the laws that must be considered in matters of this nature. Results that are accomplished by one official in a certain way will be accomplished by another in an entirely different way. It is the policy of the Department in the execution of the Food-Inspection Act to take such action as is deemed best to prevent a recurrence of the violation. Each case is considered by itself on its own merits, and every opportunity given to the importer to produce evidence, and all possible information secured and considered before final action is taken. For this reason, therefore, it is difficult to express in figures or words the real results accomplished by the port inspection during the past year. The figures given above are, however, the expression of the work as it stands on the department records, and will be given to the public. The results are shown to us who are engaged in the work in two ways. First, the change that has been made in the character of the products themselves; and, second, the change in the manner of labelling.

The enforcement of the Inspection Act has required the solution of the same problems that have claimed the attention of the State officials in the enforcement of State food laws. The same class of adulterations exists in the imported as in the domestic products, and the questions of unwholesomeness, substitution, coloring-matters, preservatives, etc., are as difficult to settle with the imported as with the domestic foods. It is encouraging, however, to note the change that has occurred in the discontinuance of the use of coloring matters and preservatives in the imported products since the Inspection Act has been enforced. This means more to the consumer than is generally realized. It means that he is not only getting the true product for which he has paid his money, but it also means that the product is the healthful, mature article of its kind, produced, cared for, and delivered to the consumer with every precaution against its contamination. The injury that may result from the use of preservatives and most coloring-matters in themselves is great enough in my mind to warrant their prohibition, but the character of the products that may be used and the methods of their preparation and preservation that may be resorted to when these substances are added, render the resulting products even more dangerous than the chemicals themselves. The use of preservatives puts a premium upon filth. Their use destroys all necessity for cleanliness and the use of scientific methods in the selection and preparation of food products. I believe it is a true statement that, where a manufacturer's product is found to contain a chemical preservative, it will be found that he is using a product, in whole or in part, that is not at the proper stage of development for preservation, or that his methods of preparation, preservation, or storage are not conducted on sanitary principles. I know that the discontinuance of the use of preservatives in the imported food product in many instances has resulted in a great change in the character of these products. This is shown in the composition and appearance of the articles themselves, in the form and construction of containers, and in the manner of sealing and preservation. And, with all this, I have yet to learn of a single instance where the enforcement of the food law with reference to the use of preservatives has necessitated the discontinuance of the shipment of any product to this country. It is frequently remarked that "if preservatives cannot be used, then such and such products cannot be brought to this country," but I always find that the article soon comes along and generally without the preservative, though frequently it is a try of all the old as well as the new preservatives before the Department's decision is accepted. As an example of this we may cite the sausages imported from Germany. The laws of Germany prohibit the use of preservatives in meat products and the Food and Drugs Act prohibits the importation into this country of any product which is forbidden to be sold or restricted in sale in the country in which it is made or from which it is exported. But many of the German manufacturers and the importers on this side knew sausages could not be shipped to this country if they were not preserved; yet the law has been enforced very vigorously in this respect for the past three years, and I know there were more cases of sausages imported during the past year than any year before the Inspection Act of March 3, 1903, went into effect. The same statements would be true of several other lines of products which have been subjected to inspection under the Food Inspection Act, not only with reference to preservatives, but also to the use of coloring-matters, glucose, and inferior substitutes.

Regarding the change in the manner of labelling, the improvement is perhaps more marked than in the character of the products. This applies not only to the correct statement on the label of the contents of the package, but also to the correct representation on the label of the country in which the goods are produced. Prior to the enforcement of the Inspection Law it was customary to put up the sardines of Spain and Portugal under French labels, or under such a form of label as would lead the consumer to believe that he was purchasing the genuine French product. The same was true of the beans and peas of Italy and Belgium. These misrepresentations were held to be misbranded under the law, and the result has been a complete change in the manner of labelling these classes of products. Goods labelled as the product of any foreign country or even of any particular section of such country must be the true product of that country or of the section specified.

The attitude assumed by the importers with respect to the import law has greatly facilitated its execution. The law, as you will note from its reading, is enforced by refusing the admission of goods found to be in violation of the act, and their destruction if not re-shipped within ninety days, and in every instance except one has the final decision of the Department been accepted and the goods re-shipped or destroyed by the importers themselves, the latter course being followed where the amount of the shipment was too small to warrant the expense of exportation. Of course, there are among the many importers at the different ports, as is found in all other lines of business, some men who can only construe the law as enacted for the particular purpose of destroying their business, and who will not make a change in their products or a correction in their labels until they are absolutely compelled to do so. Their sole object seems to be to see how much they can violate the spirit of the law and yet succeed in entering their goods under the strict interpretation of the Act. But these instances are few, I am glad to say, and the great majority of the importers have favored the law from the beginning and have supported the officials in its enforcement. With these, to correct a violation, it has only been necessary in many instances to make clear the nature of the violation and then give time to have same corrected at the place of manufacture. One of the greatest difficulties in the enforcement of a law relating to imported products is to make the foreign manufacturer understand its requirements and correct their products accordingly. These manufacturers are for the most part people speaking another language and separated from us by the ocean's broad space. In many instances they have produced their products in the same manner for generations, and they cannot understand why we now demand a change. But as the exact requirements of the law become better and more widely known, this difficulty becomes less evident. There are, however, many other difficulties that confront the execution of the law governing the inspection of imported food products, the same as there are in the execution of the State laws. Satisfactory progress, however, is being made, the work is growing, a larger field is being covered, and I hope the day is not far distant when not a single article of food or drug of foreign manufacture or production shall pass through our ports until it has been examined and found suitable for the purpose for which it was intended and correctly represented as to its character and quality.

VICE-PRESIDENT LADD: Let us depart from the regular order of the programme a little, and have the paper on "Uniform Laws," by Hon. J. Q. Emery, Dairy and Food Commissioner, Madison, Wisconsin. Mr. Emery is down on the programme for Friday afternoon, but some of those who were assigned for to-day are not here, and as it is early yet, we will have Mr. Emery's paper now.

THE ELEMENT OF UNIFORMITY IN NATIONAL AND STATE FOOD LAWS

By Hon. J. Q. Emery, Dairy and Food Commissioner, Madison, Wisconsin.

"1. Nebuchadnezzar the king made an image of gold, whose height was threescore cubits, and the breadth thereof six cubits; he set it up in the plain of Dura, in the province of Babylon.

"2. Then Nebuchadnezzar the king sent to gather together the princes, the governors and the captains, the judges, the treasurers, the counsellors, the sheriffs, and all the rulers of the provinces, to come to the dedication of the image which Nebuchadnezzar the king had set up.

"3. Then the princes, the governors and captains, the judges, the treasurers, the counsellors, the sheriffs, and all the rulers of the provinces were gathered together unto the dedication of the image that Nebuchadnezzar the king had set up; and they stood before the image that Nebuchadnezzar had set up.

"4. Then a herald cried out aloud: To you it is commanded, O people, nations, and languages,

"5. That at what time ye hear the sound of the cornet, flute, harp, sackbut, psaltery, dulcimer, and all kinds of music, ye fall down and worship the golden image that Nebuchadnezzar the king hath set up.

"6. And whoso falleth not down and worshippeth shall the same hour be cast into the midst of a burning, fiery furnace."

You will remember that at the time when the people heard the sound of this motley group of musical instruments, they fell down and worshipped that graven image that Nebuchadnezzar the king had set up, except three Hebrews, Shadrach, Meshach, and Abed-nego, who, disliking that sort of thing, openly disobeyed the decree of the king, and after some discussion with the king, finally gave their ultimatum as follows: "Be it known unto thee, O king, that we will not worship the golden image which thou hast set up."

In the past several months a cry has been sent forth by a National aggregation of food purveyors, that a golden image of uniformity in National and State food laws should be set up, and that we should all fall down and worship that image. Whether uniformity in National and State food laws is desirable or not depends upon the character of the uniformity and upon who is affected by the uniformity. If we agree with the statement of Attorney-General Bonaparte, approved by the President of the United States, that the object of food legislation is the protection of the great consuming public, then the element of "uniformity" to be regarded as desirable is uniformity in vigor and effectiveness in securing protection to the consuming public against deception and fraud in food products.

But, upon the other hand, if the prime object of food legislation is not to make the way of the transgressor hard, but to remove from the "trade" the "hardships" incident to manufacturing and selling wholesome and honest foods under honest and truthful names, honestly and truthfully labelled, then "uniformity" in food laws is quite another matter. What a wail from the trade has been resounding through the country, as to its "hardships" in meeting the requirements of food laws because of their lack of uniformity!

Of course, from this point of view the hardships of the consumers who ask and pay for a fish and get a serpent instead, or who ask and pay for bread and get instead a stone, who, in other words, ask and pay for the genuine and receive instead a counterfeit, are not to be considered.

One of the component parts of the golden image of uniformity that takes the form of a proposed food law, which a National aggregation of food purveyors has sought to set up in the States, is the so-called guaranty clause. On this feature of a National and State food law I desire to quote a few statements made by the late Hon. H. C. Adams, in his address before this Association at its St. Paul meeting, on the subject of "A National Pure Food Law." He said: "The Hepburn Bill, the Brosius Bill, the McCumber Bill, and other measures which have been before Congress have provided that any dealer charged with a misdemeanor under such a law, having in his possession a certificate of the genuineness of his goods, given by a wholesaler, manufacturer, or jobber, should be acquitted. This one provision would absolutely nullify and destroy the force and effect of any National pure-food law that might be passed. . . . A dealer may be a retailer and he may not be a retailer. He may be a jobber in the city of Chicago. He may be engaged in purchasing food products from New England, storing them in Chicago, and shipping them to Wisconsin. He may have the most extensive business in the United States in transporting or causing to be transported food products from State to State and yet if, under the Hepburn Bill, or the Brosius Bill, or the McCumber Bill, he presents in any court a certificate of the genuineness of his goods, whether that certificate is true or false, he is to be immediately acquitted. A provision of this kind would be the rankest absurdity that was ever written into law. It would not dam up the rivers of adulteration: it would simply divert their course."

I believe what Mr. Adams then and there said of that feature of the Hepburn Bill, the Brosius Bill, and the McCumber Bill is true, and that it is just as true of the guaranty feature of the present National Food Law; for the present National law does not provide simply that the dealer establishing a guaranty shall not be *convicted*, but that he shall not be *prosecuted*. He shall not be brought into court. Was that change in phraseology made in the interest of the consuming public? Yet we are importuned to embody this feature of food legislation in State food laws for the sake of "uniformity" and for the purpose of freeing dealers from the hardship of prosecution for the sale of adulterated food products. Shall we fall down and worship this golden image which the "trade" has set up?

A bill embodying this feature, that was introduced into the Wisconsin Legislature at its past session, met a timely death. Does any one dare contend that such a feature of food legislation has for its purpose the protection of the consuming public against fraud and deception in food products?

This feature of the National Food Law is contrary to the usual principles and practices recognized in the ordinary business of life. A man is responsible for what he sells. You sell a piece of land and give to the purchaser a warranty deed. Does the fact that you received such warranty deed from the man from whom you purchased it release you from responsibility to the man to whom you sold it, provided it is proven that the title further back is defective? Certainly not.

I have heard no more apt characterization of this feature of food legislation than that given by Dr. Fischer, when he likened it to the shell game of the fakers at the fairs. You bet that a pea is under some given shell, only to find that it is not under that particular shell, if, indeed, it be under any of the shells. Under this feature of the National Food Law, the great Government of the United States must go out seeking for the pea under the faker's shell.

A sells an article of food to B, guaranteeing it to comply with the provisions of the National Food Act. B sells it to C without guaranteeing it, as he is not liable under the statute, and, it must be admitted, has not sufficient confidence in the guaranty which he has secured to make him willing to furnish a similar guaranty to his own customer C. C finds the product adulterated. The right of C to prosecute B for this sale of adulterated food has been taken away from him by law. He has no redress against B, no matter how deleterious the food may have been. Is this justice? Is this good law? But the law naively says that A shall be amenable to the prosecutions, fines, and other penalties which would attach in due course to B under the provisions of that act. Do you believe for a moment that A can be brought into court by C as a vicarious sacrifice for B's doings? I do not believe there is a court in the United States that will for a moment admit that it has criminal jurisdiction over A in such a case as this. If it were not written in a United States statute, it would be regarded as the veriest nonsense. A will be responsible in the courts for the unlawful sales that he has made; but he cannot, in my judgment, be brought into court to answer vicariously for the acts committed by B.

A paragraph from an opinion rendered by the New York Court of Appeals, in the earlier days of food legislation in this country, seems pertinent here: "It is notorious that the adulteration of food products has grown to proportions so enormous as to menace the health and safety of the people. Ingenuity keeps pace with greed, and the careless and heedless consumers are subject to increasing perils. To redress such evils is a plain duty, but a difficult task. Experience has taught the lesson that repressive measures which depend for their efficiency upon proof of the dealer's knowledge and of his intent to deceive and defraud are of little use, and rarely accomplish their purpose. Such an emergency may justify legislation which throws upon the seller the entire responsibility for the purity and soundness of what he sells and compels him to know and be certain."

And such food laws have been sustained by the courts. I quote the following from the Ohio Supreme Court: "The act is not a provision for the punishment of those who sell adulterated food or drugs, because of any supposed turpitude prompting such sales or indicated by them. It is a plan devised by the General Assembly to protect the public against the hurtful consequences of the sales of adulterated foods and drugs, those consequences being in no degree increased by the vendor's knowledge or diminished by his ignorance of the adulteration of the articles which he offers for sale." . . . "It was the evident purpose of the General Assembly to protect the public against the harmful consequences of the sales of adulterated foods and drugs, and, to the end that its purpose might not be defeated, to require the seller at his peril to know that the article which he offers for sale is not adulterated, or to demand from those from whom he purchases indemnity against the penalties that may be imposed upon him because of their concealment of the adulteration of the articles."

This is the theory upon which the State food laws have been enacted and enforced. But now we are told that these laws work "a hardship" on the dealers. Probably that has been the intent of the laws, to work a hardship on the sale of adulterated, fraudulent, or deceptive foods. The tendency of these laws is to break up the traffic in fraudulent goods. If there must be hardship borne by either the consumers or dealers, let the dealers bear it. The way of the transgressor should be made hard, not easy.

After specifically providing in the National bill for outlawing "imitations," the National lawmakers, at the behests of certain "interests," proceeded to adopt a second proviso with certain features directly antagonistic to the first. And this Janus-faced feature of the National law, under the seductive title of uniformity, we are commanded to fall down and worship.

In the St. Paul address to which I have referred, Mr. Adams made the following statement: "A National pure-food law should have written into its letter such a specific standard for every food product known as will satisfy the best judgment of this Association." But no such feature was embodied in our National law.

In the matter of standards for foods there would seem to be not only an opportunity, but a demand for uniformity in National and State laws. The notion that there can be any real genuine uniformity in National and State food laws without uniformity of standard for food products is a delusion and a snare. Flour should mean the same thing in interstate commerce as in the local trade of the retail dealer. The same is true for cheese, milk, cream, vinegar, spices, baking-powder, honey, sugar, sirup, coffee, extracts, meats, jellies, lard, and so on through the list. But are these trade zealots who are clamoring so loudly for uniformity of National and State laws making any struggle to secure definite, uniform standards for food products throughout the country? Upon the other hand, are they not obstructing the efforts of the friends of effective pure-food legislation in this country to establish such definite and uniform standards? Definite and specifically defined standards for food products would make our laws vigorous and effective.

Wisconsin has a law making the standard for food products as latest promulgated by the U. S. Secretary of Agriculture the legal standard in all cases arising under Wisconsin law, where other standards are not specifically prescribed by State law. But, under the bland plea for "uniformity," Wisconsin would be asked to repeal this effective law and adopt an impotent one, without standards.

Some of our States have specific laws forbidding the sale of foods containing certain specified preservatives or antiseptics. Wisconsin is one of those States. Such a statute can be effectively enforced. It furnishes protection to the consumers; but, under the shibboleth of "uniformity," we are asked to have these effective laws repealed and in their stead laws enacted that deal in glittering generalities, and whose enforcement is thereby made extremely difficult, if not impossible; and all this under a seductive plea for "uniformity."

Another feature of the National law which it is proposed to use as a constituent part of this golden image of uniformity is the cumbersome procedure prescribed for the administration of that law. This law puts its administration in much the same attitude as was the National Army under Halleck in its movement from Shiloh to Corinth. Grant says: "It was a siege from start to close." And this feature of the National law seems to have adopted Halleck's motto in that movement: "Don't bring on an engagement. It is better to retreat than to fight."

One of the purposes of this feature of the National law appears to be to provide legal means whereby the "consulting chemist" who concocted the formula for the adulterated stuff may be afforded the opportunity to analyze it and then swear upon the witness stand that it is unadulterated. "The ox knoweth his owner, and the ass his master's crib."

Permit me to quote the following from Mr. Adams's St. Paul address to which I have before referred: "The highest art in defeating laws is to draw them with such cunning ingenuity that, while bearing a fair countenance, they shall carry in every line and section the seeds of disaster in the courts." Certain features of the National law are not wanting in "such cunning ingenuity." Yet the golden-imaged uniformity bill which it is proposed to foist on the States has every one of those features.

Because the open and secret enemies of vigorous and effective food legislation may have succeeded in introducing some weak, ineffective, or untried elements into the National Food Law, should the States that for years have been enacting and enforcing food laws abandon strong and effective features of their own laws and adopt instead the less vigorous or effective features of the National law because, forsooth, those features of the State laws work a "hardship" on the trade? If the end sought by food legislation is to remove "hardships" from the trade, then why not repeal all food laws—State and National? The fact is that the friends of pure-food laws accepted the present National law upon the theory that half a loaf is better than no loaf.

I am in favor of such uniform National and State food laws as can be made to comprise the strongest and most vigorous features of present State and National laws, enacted with the purpose and with the effect of protecting the consuming public against adulteration and fraud, without imposing any hardships on the trade not necessary to the accomplishment of that purpose. But I am opposed to that uniformity in National and State food laws which comes only to relieve the trade from hardship, by writing into those laws the weakest and least effective features of present laws, with "such cunning ingenuity" that, while "bearing a fair countenance," they carry the elements of disaster to the consuming public. Be it known unto thee, O king, that we will not fall down and worship such a golden image of "uniformity."

If there is a serious desire to enact and enforce effective food laws for the purpose of protecting the consuming public against adulterated or fraudulent foods, let us not hasten to inject into existing State laws, either by amendments or re-enactments, any of the weak and defective features of the National law under the clamor for uniformity. Let us wait until it has been shown what features of the National law can be effectively enforced and what protection can be thereby given the consuming public. Let us wait until the questionable features in the National law have been judicially determined. When uniformity comes let it be upon a higher and not upon a lower plane of protection to consumers.

Vice-President Ladd: That makes all the regular papers provided for this afternoon. However, I understand there is a

Mr. Wesson here in the audience who desires to extend an invitation to the Association, and if he is now present in the room Mr. Wesson has the floor.

Mr. Wesson: This being the first meeting of the State and National Food and Dairy Departments in the South, the Southern Cotton Seed Oil Company deems it appropriate to make the members of your Association better acquainted with cotton-seed oil as a food product. It is a product which you have doubtless met under a great many different names, but under our new laws everywhere is rapidly coming to its own, and is becoming known to you under its true name. It is being acknowledged as a food product. I invite the members of your Association to a luncheon to-morrow at the Food Products Building, when I will be pleased to make you better acquainted with this great food product, and I promise you a good luncheon made exclusively from dishes prepared with it. Invitation cards will be handed you in the morning. The cards will state the hour, and we will be glad to have the pleasure of seeing you at that time. I thank you for your attention.

DISCUSSION.

Dr. Irion, of Louisiana: Mr. President, if there is no other paper on the programme for this afternoon, I should like to proceed with the discussion of Mr. Emery's paper. I think that "uniformity" is one of the most important subjects for discussion at this Convention. Mr. Emery has read a very able paper that covers some important points, and I think the paper should be discussed while it is fresh in the minds of the Convention.

Vice-President Ladd: What is the wish of the Association?

A Member: I notice from the programme that there is another paper along this same line. I think it would be better to wait and hear that, and then discuss the subject as a whole.

Vice-President Ladd: I think that is a good point.

Dr. Irion: You mean the paper on "Some Agreed Principles Upon Which to Base Uniformity," by Commissioner Noble? On the programme that paper is not to be read until Friday. If that paper could be read now I would be glad to hear it. In my opinion to postpone discussion of Mr. Emery's paper until the afternoon of the last day of the Convention would result in cutting out any discussion at all.

VICE-PRESIDENT LADD: Shall we take up this paper now or a paper which is not on the programme, one by Mr. Robinson, of the Canners' Association, who desires to present the views of that Association before this Convention? What is your pleasure,—to discuss Mr. Emery's paper at this time, or leave that subject until the second paper on it has been presented?

It was moved and carried that discussion on "Uniformity" be deferred until Commissioner Noble's paper could be presented.

VICE-PRESIDENT LADD: Mr. Robinson has the floor if he is present.

MR. ROBINSON: Before reading my paper, gentlemen, I want to say one word with respect to the addresses I have heard this afternoon. I can't help seeing that among some there seems to be the impression that the manufacturers have a desire to continue to pack adulterated and misbranded goods. Being a canned-goods manufacturer myself, I know that the intention of the manufacturers of our State is to comply with the law to the letter, whether it can ever be enforced or not. The manufacturers are so earnest in their endeavors to meet the new requirements that they are constantly asking questions as to the advisability of using certain phraseology on their labels, as they want to comply strictly with the new Federal law. I want to say plainly that every honest packer is with you heart and soul in your work. We want to do right and we hope with it will be acknowledged that the best packers of this country are in sympathy with your noble work. (Paper follows.)

REMARKS OF MR. ROBINSON, MEMBER OF THE CANNERS' ASSOCIATION

ON behalf of The National Canners' Association, we wish to thank you for the kind invitation extended us to be represented at your Eleventh Annual Convention.

There is no occupation more honorable than that of supplying food for the human race, and none that carries with it a greater degree of responsibility. It is a well-recognized fact that the prosperity of nations is in exact proportion to their standard of food consumption. To some this may seem a strange and unwarranted assertion; but it is, in my judgment, nevertheless true. One of the best illustrations of this is our own country, America. We are the strongest nation on earth in everything we undertake, and we are considered the best-fed nation, notwithstanding all the adulterated, misbranded, colored, and imitation foods we have been consuming.

I do not wish to be understood as advocating the deplorable practice of food adulteration; it should be stamped out, and no class of manufacturers of foods is more zealous in the accomplishment of this than the canned-goods packers.

Prior to the passage of the National Pure-Food Law, we had an organization well under way, known as the National Packers' Association of Pure Foods. The origin of this organization was due to the fact that a very large number of reputable canned-goods packers realized that adulterated foods were a menace to the business, and that coloring and preservatives were in most cases unnecessary, and in many cases deleterious to health. Indeed the evils which this Association aimed to remedy became so conspicuous that they formed the foundation for the passage of the National Pure Food Law, which thus made effective what the National Packers' Association of Pure Food had been organized to accomplish.

The canning industry has not been as well organized as many other industries of its size and importance, due largely to the fact of its being, comparatively speaking, a new industry. Twenty-five years ago the total pack of tomatoes, which seemed at that time to be quite sufficient for the demand, was only about three million cases; now the trade requires from ten to twelve million cases annually. The same can be said of canned corn, and the demand for almost all other canned fruits and vegetables has increased in the same ratio.

Some time next winter the first meeting of the National Canners' Association will be held. Heretofore the various packers' associations have been meeting with the Canning Machinery and Supply Association, and it can be truthfully said that all had a jolly time; but, the canners being unorganized as a distinct body, nothing could be accomplished beyond a pleasant exchange of views.

Now we are organized into a National Association with Mr. George G. Bailey, of the Fort Stanwix Canning Company of Rome, N. Y., as president, and he has associated with him an executive committee composed of active, astute, high-class business men, whose sole ambition is to place the canning business on a high moral plane, and we shall be at all times ready to co-operate with this or any other food association looking to rooting out evils and establishing honest and fair methods.

We hope, through the instrumentality of the National Canners' Association, to accomplish much in establishing uniformity, from the lack of which we are suffering more to-day than from any other cause. We want uniform contracts between buyer and seller, uniform standards, uniform guaranties, and, most of all, uniformity in State and National pure-food laws.

At present it is difficult to find two contracts for the purchase and sale of canned goods which are written just alike. Being engaged in the canned-goods commission business and handling a number of packs besides the output of my own factories, I can appreciate this more than the average packer. I find it very difficult at times to draw a contract acceptable to both buyer and seller, each one wanting it worded in his favor, which is quite natural.

UNIFORMITY OF STANDARDS.

At present in the case of canned tomatoes we have what is known as the Maryland standard, the Jersey standard, the Baltimore standard, the Indiana standard, besides a number of other standards, and some packers have a standard of their own.

This leads to numberless disputes when the time comes to deliver. The buyer has his idea of a standard and the seller has his. Of course, a packer always thinks his goods are of standard quality; then a dispute follows which frequently winds up in a rejection and sometimes results in a heavy loss to the canner, who has probably been entirely innocent and has delivered, in point of fact, just what he sold. But the buyer, seeing an opportunity to make money by rejecting the goods on a low market, and securing his requirements at a much lower price than he contracted to pay, gets a very high ideal as to a standard. He frequently wants something that nature does not produce; in fact, he does not want the goods at all. He sees that he has made a mistake in his future purchase; so wishes to get from under the loss and frequently does it. In most cases being several hundred miles from the packer, he is safe so far as litigation is concerned, since business men, as a rule, do not want to go to law so far from home.

On the other hand, a packer takes orders at a certain price, and when the time comes to deliver, the market has materially advanced. He sees plainly that he exercised bad judgment in selling so soon, and we are sorry to say that in some instances he will pack his cans partly with fruit and the rest of the contents will be clear, cool water. He will probably take the precaution of sending samples to the buyer and notify him that he is ready to ship his goods. The buyer looks at the samples and the moment he sees them knows that they are not of standard quality and not what he bought, but he cannot afford to reject the goods. Were he to go on the market, he would have to pay a large advance over his original purchase. This he could not afford to do, so he simply orders his goods, pays for them, makes up his mind that the packer is a rogue, and frequently awaits his opportunity to get even with him and in some instances makes his loss off of an innocent packer.

This, I am proud to say and I wish to say with emphasis, is a description of only a comparatively few canners and a few wholesale grocers.

I have the pleasure of being intimately acquainted and transact business every year with a large number of canners and wholesale grocers who would not stoop to such methods under any circumstances, but as laws are generally needed to apply only to lawbreakers, they cannot be dispensed with because a large percentage of people are not lawbreakers.

UNIFORM GUARANTIES.

Some markets demand swells guaranteed only for the usual time, which is six months after date of invoice, others eight months, and some as much as nine months. In many instances packers concede this, but there is no reason why one market should have its swells guaranteed longer than another. We hope that some time in the near future we will be able to establish a uniform guaranty to apply to all markets.

And now, most important of all is the uniformity of State and National pure-food laws. This is highly important, not only to the canners and food producers generally, but to the individual States. While the National Canners' Association is a loyal advocate of the National Pure-Food Law as passed by Congress a year ago, we are not unkindly criticizing some of the States for enacting pure-food laws radically different from the National law. We believe they have suffered wrongs which they thought extremely necessary to remedy.

We believe, however, that some of the States will not realize their expectations through State legislation. For example, we took some orders a year ago to be shipped to a State with a pure-food law which requires the weight to be stamped on each can, and it was with great difficulty that we were able to fill these orders at all. Some of our very best packers who pack only a superior quality of canned goods, would not accept an order complying with such a State pure-food law under any circumstances. Therefore, we do not have our best packers to pick from in filling orders to go to States that require certain stipulations which are not covered by the National Pure-Food Law, and we were very much handicapped in securing the very best quality of goods. Indeed, it is next to impossible to do justice to these States in filling their orders.

We most strenuously urge upon those present who are representing States with laws not in accord with the National Pure Food Law, especially so far as labelling is concerned, that they will use their utmost efforts to have these laws repealed or amended in such a way that their orders can be filled on an equal footing with other States whose laws are in conformity with the National.

I shall not here go into the question of the Weight and Measure Clause on labels, as Mr. J. P. Olney thrashed this subject out pretty thoroughly a year ago, and his address is a part of the records of your Association.

I thank you all for your forbearance and assure this Association that the National Canners' Association is always ready and willing to co-operate with you in any way that will place the food-producing business on a high plane.

Vice-President Ladd: Mr. F. J. H. Kracke, of New York, who was to have given us an introductory address this morning, is not able to be with us, but his brother is here and will speak in his place. Mr. Kracke.

Mr. Kracke: I am commissioned by the Naval Officer to occupy the time assigned to him before this Association at its Eleventh Annual Convention. I should have been here to have read this paper at the opening of the Convention, but owing to delay in transit, etc., I was not able to do so. (Paper follows.)

REMARKS BY HON. HENRY H. KRACKE

Ladies and gentlemen and fellow-delegates to this the Eleventh Annual Convention of the Association of State and National Food and Dairy Departments:

Our late and lamented President McKinley in his address at the Pan-American Exposition at Buffalo, N. Y., characterized expositions as the timekeepers of progress.

It may truly be said also of conventions such as this, its members being made up of officials of the food departments of the various States, who are charged with the enforcement of laws protecting the public health and morals affecting the entire population of the United States with its ninety millions of sovereigns representing the highest average the world ever knew of conservative thought, intellectual energy, and patriotic obedience to law.

A progressive spirit is evidenced in selecting this place for holding this Convention, the oldest Virginia colony, starting originally with but 105 men; of whom 12 men were laborers, 4 carpenters, and 6 or 8 masons; to-day we behold here the progress of three centuries, representing the truly American spirit, PROGRESSIVENESS.

In the opening paragraph of the Constitution of the United States we catch the new note:

"We, the people of the United States, in order to secure a more perfect Union, establish justice, insure domestic tranquillity, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America."

The Chief Magistrate is elective, not hereditary.

All legislative powers granted are finally and fully within the control of the people.

On our own initiative we have extended our territory, formed new States, and founded and fashioned the institutions which made not only for the well-being of the Nation, but also for the development of the plain people.

Never before had individual initiative and development found such opportunity as the present, which this exposition plainly demonstrates.

Our programme is an admirable one and ought to be productive of good results, in bringing about a greater unanimity of opinion as to the best methods of enforcing the pure-food laws of our respective States.

There are people who believe that the easiest way to dispose of a subject is always the best way; but with the official charged with the enforcement of a law, pure food or other, if he be a manly man, to see a duty is to do it, as in every instance the harder and more trying the greater is the strength and satisfaction derived in its doing. It has been said many otherwise honest men fail to see their duty because they are suffering from selfish-matism or indiffer-mentia, prevalent and often incurable diseases of the sight and mind. It is a comparatively easy matter for us to find some one who will volunteer to do our thinking for us, but I deem it wiser to keep in practice and do our own thinking. It has also been said that the deliberate avoidance of obvious duties is closely akin to passive dishonesty. Hence the value of our meeting in convention and exchanging views and experiences—to the end that we might arrive at some definite conclusion for the more thorough enforcement of pure-food laws for the protection of the people.

I am satisfied in looking over the programme and the various subjects to be discussed that when we have adjourned we shall return to our respective stations with clearer views than we have heretofore entertained, and the better fitted again to take up the battle against fraudulent food products.

VICE-PRESIDENT LADD: That completes the programme for this afternoon. We will want to be here promptly at nine in the morning. The matter of the appointment of committees will probably come up, besides the regular programme.

Adjourned until 9 A.M. July 17th, 1907.

Wednesday, July 17th, 10 A.M.

VICE-PRESIDENT LADD: The Convention will come to order. We must hurry along with the programme as fast as we can and at the same time discuss the topics as fully as possible. I am going to change the order of the programme a little in order to have Professor W. M. Allen, State Food Analyst, Raleigh, N. C., give us his paper on "The Effect on Butter from Feeding Cotton-Seed or Cotton-Seed Meal, and Difficulties Met with in Detecting its Adulteration."

THE EFFECT ON BUTTER FROM FEEDING COTTON SEED OR COTTON-SEED MEAL, AND DIFFICULTIES MET WITH IN DETECTING ITS ADULTERATION.

By Professor W. M. ALLEN, Food Chemist, North Carolina State Board of Agriculture.

THAT the butter produced is materially affected when milch cows are fed on cotton seed or cotton-seed meal is common knowledge to all dairymen who have had experience with feeding them.

I have nothing original to present to you this morning. I merely wish to relate a little of my own experience with a sample of butter produced while the cow was fed largely on cotton seed, with light grazing; to call your attention to results obtained from feeding these products by the Texas and other experiment stations, and point out some of the difficulties met with in positively identifying a natural butter.

The sample of butter referred to was sent to the Department by a city-market inspector; he, from the general appearance, odor, and taste, having suspected that it was adulterated.

The sample had very much the general appearance of tallow, to both sight and touch, though not perfectly uniform in color. It had a very decided odor and taste of tallow. The weather was very warm, and while many other samples of butter in the laboratory at the time were in either an oily or a semi-oily condition, this sample was perfectly firm as though it had just been taken off ice.

As usual, I first subjected it to the butyro-refractometer. At 45 degrees C. the scale reading of the refractometer was 42, being a half division of the scale higher than is admissible for the critical line of pure butter at that temperature. The Waterhouse test for oleomargarin and the foam test for process butter were then applied, but unsatisfactory results were obtained in each case. The melting-point was then determined and found to be 39 degrees C., the latter being 10 to 15 degrees C. above any other of a large number of samples in the laboratory at the time. A chemical examination of the sample was then made with the following results: volatile fatty acid 13.1 cc., soluble fatty acid 4.88, insoluble fatty acid 88.89, the iodine-absorption number 42.34 and the saponification equivalent 258.86. With the Halphen test no reaction was obtained for cotton-seed oil, but with silver nitrate a slight reduction was produced.

As we see from the results of the analysis, the volatile fatty acid being at least one-half below, and the melting-point being at least 10 degrees C. above that of normal butter, and the iodine-absorption number also being high, there were many indications that it was either mixed with oleomargarin, or that it was adulterated with tallow. It was rather puzzling.

We made inquiry about the source of the butter, and learned that it had been made by a small farmer in the county, of rather low order of intelligence. We sent for him and questioned him about how the butter had been made, and on what the cow had been fed, etc. He informed us that he had fed her on cotton-seed meal only, with very light grazing, and that she consumed from three to four gallons of the seed daily. This was practically sufficient explanation for the composition of the butter, but we asked him to bring us a perfectly fresh sample of the butter, just as it was taken from the milk. He did so, and the results of the analysis were practically the same as the results from the first sample.

Had the information in regard to the production of the butter not been available, I confess that I should have been at a loss to know what to decide as to its purity. The results agreed very nearly with the results of several samples of oleo that we had previously examined, but they also agreed closely with the results of the analysis of cotton-seed butters reported by various chemists.

The fact that it reduced silver nitrate meant but little, and had the Halphen test shown the presence of cotton-seed oil, it would not have indicated that the sample was a cotton-seed butter, for it might have been oleo containing either cotton-seed oil, or tallow from cotton-seed-fed beef. In either case the results would have been the same, for it is well known to chemists that the feeding of cotton seed to beef, cattle, or hogs can be detected in the lard or tallow by the chemical test for the detection of cotton-seed oil, unless very high heat is used in rendering the lard or tallow.

Among the many problems that have been presented to chemists in the examination of foods and food products, one of the most interesting has been the positive identification of pure butter as distinguished from oleomargarin in its various forms and mixed with butter.

It was formerly held that natural butter could be safely distinguished from the artificial or adulterated products by the estimation of the volatile fatty acids present. The amount of these acids always running so much higher in natural, unadulterated butter than in the fat used in the manufacture of the artificial product, or the adulteration of the natural butter, that after the determination of the volatile acids there could remain little doubt as to the purity of the butter. Attention was called, a few years ago, by the Texas and other experiment stations, to the effect on butter of feeding cotton seed and cotton-seed meal, showing that the former standard of volatile acids existing in pure butter was unreliable, and, judged by this standard alone, or taken in connection with the melting-point even, a pure butter derived from cotton seed or cotton-seed meal might be mistaken for oleomargarin or a butter adulterated with other fats.

It was also shown that the melting-point of butter from cotton seed or cotton-seed meal reached several degrees higher than that of normal butter from other feeds, that the iodine-absorption number is much higher, and that the saponification of the cotton-seed butter was extremely difficult, the latter indicating how persistently some parts of the cotton-seed oil pass through the digestive organs without decomposition, and appear as such in the animal fat. The effect of digestion on the different oils in foods is a matter of great interest. Since cotton-seed oil contains a large amount of olein which is liquid at ordinary temperature, we would expect it to lower the melting-point of butter, as well as the melting-point of the other fats operated upon, but the effect seems to be the reverse of this in each case. If any part of the cotton-seed oil does pass into the animal fat without decomposition, as is indicated in several ways, its effect on the saponification and the volatile fatty acids of the fats is what we would expect, but, as has been shown, the effect on the melting-point is certainly just the reverse of what we would expect to find.

The silver-nitrate reduction test and the Halphen test for cotton-seed oil indicate that it is much less likely that the cotton-seed oil passes undecomposed into the butter fat than into the fat of the body of an animal.

A study of the nonfatty substances which occur in lard and cotton-seed oil has been made by Bomer with the hope of finding a method of detecting such adulteration with certainty, and he is said to have developed a delicate and very satisfactory and excellent process for detecting the presence of any vegetable fat in lard; and I suppose it would serve the same purpose with butter, but it would not remove the difficulty met with in the presence of tallow from cotton-seed-fed beef.

The method depends upon the presence in all vegetable fats, but not in animal fats, of a small amount of a certain alcohol, phytosterol, which has a definite crystalline form.

The method is described in the Year-book of U. S. Department of Agriculture for 1904.

So, I think, we see that positively to identify certain forms of adulteration in butter, or to distinguish between them and some classes of butter, is not a very simple matter.

VICE-PRESIDENT LADD: Is there any discussion on this paper? If not, we will call for the next address which is one on "City Milk-Supply Inspection," by Mr. H. E. Schuknecht, Assistant State Food Commissioner, Chicago, Ill.

Mr. Schuknecht is not here, however, and the next paper is one on "The Score Card and Its Application in Dairy Inspection," by Prof. E. H. Webster, Chief of Dairy Division, Department of Agriculture, Washington, D. C.

THE SCORE CARD AND ITS APPLICATION TO DAIRY INSPECTION.

By Prof. E. H. Webster, Chief of Dairy Division, Department of Agriculture, Washington, D. C.

The purpose of dairy inspection is primarily the enforcement of law. The law exists for the protection of the people, its creators, against fraud. Fraud may be committed through ignorance, carelessness, or malicious intent. The inspector who fails to recognize this triune fails largely in his purpose.

In laws framed for the purpose of controlling the manufacture and sale of dairy products there are two general classes of fraud recognized, one against the pocket-book and one against health.

While the citizen has the right to the protection of his pocket-book against the greediness of his neighbor, it is a matter of minor importance to the protection of the health of his family. It is comparatively an easy matter to detect and punish such frauds as watering and skimming milk, substituting one fat for another up to a certain point, giving short weight, misbranding, etc. In these the law does not usually recognize degree. It is guilty or not guilty. This class of frauds are usually committed with malicious intent and the penalty is definite and seldom questioned. The complete enforcement of such laws depends upon the vigilance of the officers and the public spirit back of them. Public spirit is usually more active in guarding the pocket-book than in preserving the health of the owner of the pocket-book.

With few exceptions the questions of sanitation in respect to health are relative rather than positive. In one instance a set of conditions will cause sickness and in another, with apparently similar conditions, no bad effect is traced. Trouble may come from more than one source, hence the inability of the officers to prove unwholesomeness, or that the conditions may induce unwholesomeness. This points out clearly the reason for the present unsatisfactory condition of the average sanitary inspection.

Sanitary engineering is a new branch of science, so new that many of the eminent authorities disagree as to its facts. Many of the elements of this science are still unclassified and little understood. When the sanitarians disagree as to the proper classification and interpreting of truth known to exist, it is not to be expected that the layman will understand or have an over-amount of confidence in rules and regulations or the laws on which they may be based, governing sanitary conditions under which dairy products must be produced and handled.

Sanitary science is still too new to have found a place in the curriculum of the school-room, and those with whom sanitary officers and inspectors have to deal have never been taught its simplest elements.

These facts are pertinent:

> Laws in regard to sanitation are the most important.
> These laws are the hardest to enforce.
> The reason is ignorance.

The greatest number of violations of all laws governing the production and sale of dairy products are because of ignorance. Carelessness, whose root is ignorance, will rank second. Malicious intent will account for the least number. The rating of actual prosecution for violations of these laws may be just the reverse. The inspector must be an educator and he must be master of his subject. He must leave behind him a desire for improvement. The average school-boy does not like to stand at the foot of his class. The man is the school-boy grown up. If the inspector can tell him how he stands in comparison with his neighbor the desire for improvement is created.

The thing that has spurred many a school-boy to attainment and even leadership is the publicity attached to his failures. Publicity will work wonders in bringing about better conditions in dairying. If those in charge of inspection forces are going to make public the result of their inspections they must be on sure and safe ground. Otherwise the way is open for error and misrepresentation or even blackmail.

The standards for sanitary inspection have not as yet been well worked out. As already stated, the work is new and the doctors disagree. When there is a doubt the question of health should be given the benefit rather than the party involved in the production of the goods. This would be the only true safeguard to health. In the absence of corrective law a fair, square public statement of facts as they exist will go even farther than law without publicity.

In the absence of specific standards for all matters pertaining to sanitation and the ability to draw the line definitely between what is allowable and what is not, a statement of the ideal must be drawn. This ideal must embrace those conditions which from past experience are known to insure a perfect product. How close the manufacturer or producer will be required to approximate this ideal is for the inspection officers to decide. Whatever the standard may be, the inspector must have some adequate method of determining or measuring the distance between the actual and the ideal. The measure of this difference gives the rating. Such a rating cannot be made without a clearly defined analytical examination of the premises and products under inspection. The results of this examination cannot be fully described by words. No adequate idea of distance, height, or breadth can be conveyed without a measure of length. No idea of weight can be conveyed without a unit of weight. Neither can a complete idea of sanitary conditions be given without a standard of measure; that standard is naturally the percentage or relative value based on 100 as perfect. From the earliest school-days this conception of comparison or degree is taught. The application of this principle to sanitary inspection is natural and easy. Results are comparable. Averages can be readily obtained and a statement of existing conditions clearly made. The manufacturer or producer can know how he ranks. This fosters the spirit of emulation. Defects can be pointed out. A powerful lever is thus placed in the hands of the inspector for encouraging better conditions.

Without a carefully worked out system the inspector may be deceived. First impressions are not always correct ones. It not unfrequently happens that a general survey of premises will seem to justify a good rating, when a careful examination of details will disclose very undesirable conditions. Just how bad these conditions are will be shown if each detail is carefully weighed by itself and the inspector's estimate of its value put down in the percentages. In going over the premises the owner or manager should always be present and each point discussed with him. This result is the best kind of educational work on the part of the inspector. The owner is left not only with a desire for a better score, but with a fund of information that will enable him to make necessary changes to secure the better score. A skilful inspector can usually make the owner or manager place his own score with a little coaching. This puts the burden of proof on the concern rather than on the inspector and stops possible complications of unfair treatment.

To prepare a report of this kind will necessitate a well-informed inspector. He must not only know every detail of the business under inspection, but he must be a good observer. When several inspectors are working in the same field they must work with the same standards. An analytical score card will be of material assistance in uniform rating. Such reports will enable the officers in charge of inspection to analyze conditions and determine readily the points that need improvement. A standard of perfection can be fixed. The line can constantly be pushed up. Consumers of dairy products can acquaint themselves with the facts and buy from the best-scoring plants. This encourages a better price to the producer for a superior article. A better price for a better article is a more powerful argument and one that is heeded quicker than any law or set of regulations.

The score-card system for sanitary inspection will aid in better and cleaner dairy plants, more wholesome products for the consumer, and better prices for the producer.

DISCUSSION.

Vice-President Ladd: Is there any discussion on this paper?

Mr. Emery: I think perhaps it may be that the point I want to raise is not germane to the subject, but it is on this subject of dairy products and Professor Webster is the only official I see here representing the U. S. Government. The thing I want to know is whether or not the authorities are going to enforce that part of the National Food Law which refers to this misbranding by marking up the weight of cheese. Wisconsin is particularly interested in that matter and the cheese dealers of the State are desirous of knowing whether or not the authorities are going to enforce that law. I want to say, by the way, that the Cheese Dealers' Association of Wisconsin want to have that law enforced.

Mr. Webster: I am unable to speak for the Bureau of Chemistry, which Bureau will have charge of that matter, but we are working in harmony with the law and I believe it is the policy of the Department to enforce it.

Mr. Emery: What I want to know is to what extent they are going to enforce that law.

Mr. Webster: Ask Dr. Bigelow about that.

Mr. Emery: I will ask him and I am going to ask every Government official I see here.

Mr. R. M. Allen, of Kentucky: Mr. Webster, let me ask you if you have struck the objection to publishing comparative good scores among dairymen. Let us say, to illustrate my meaning, that A's dairy score is 85%, B's 87%. If you publish this, you will find B advertising the fact that his score is more than A's. Does such not bring about dissatisfaction and an unnecessary unfriendly feeling? In one district in Kentucky dairies scored so much, and in another district the score was something higher than the first district. Then the district which had the highest score advertised the fact. The first scoring was not a representative. Bad feeling followed. Do you find such a condition of affairs to exist in your work elsewhere?

Mr. Webster: To some extent, yes. But I don't believe that objection is a valid excuse against using the score card; indeed it is rather, I think, an argument in favor of it. I say in favor of it because we want to encourage dairymen to work for a higher score. I believe if the owner of the premises will go with the man who is making the score, and matters are freely discussed, it will do away with what objection there may be to the idea, because the owner will practically be making his own score. No matter how low it is, the owner himself will really be writing his score.

Mr. Allen, of Kentucky: One objection to the publication of the score strikes me, and it is the principle involved in all food work: you can continually point out specifically that which is bad, but you can only point out in a general way what is good. Illinois, for example, prohibits a certificate of purity being given to any product, and I doubt if you could give a dairyman the merit reading of a score card in that State.

MR. WEBSTER: Publicity will overcome all that. We find the plan working satisfactorily in several States already where creameries are being systematically inspected. Minnesota, Iowa and South Dakota have adopted the plan and are going over all their dairies.

MR. ROBISON, of Michigan: I would like to ask you one question. That is, how much publicity is given this inspection?

MR. WEBSTER: That depends entirely upon circumstances. It would depend upon the city and the State and their ideas concerning the matter.

MR. EMERY: If you go by the National Pure-Food Law, you can't give any publicity to anything you find. I speak of the principles of the law and some of its features. If you go into a dairy and you find it is dirty, you have got to keep still about that. You have got to tell the dairyman about it and give him a chance to appear before you and show that it is not dirty, and after he has told you that it is not dirty, if you are still of the opinion that it is, then you can prosecute him, and if you convict him, then you may give the matter publicity. Not before. And you must not publish the names of any bad foods.

VICE-PRESIDENT LADD: We must go on with our programme. The next paper is one on "Composition of Market Condensed Milks," by Prof. Elton Fulmer, State Chemist, Pullman, Wash. Professor Fulmer is not present, and we will pass over his paper. We will ask the Hon. P. M. Harwood, General Agent, Massachusetts Dairy Bureau, Boston, Mass., to give us his paper on "Has the Milk Standard Outlived Its Usefulness?"

MR. HARWOOD: I have listened to the last paper with a great deal of interest. In Massachusetts there is rather a hard condition in relation to this matter of milk standards, and, in what I shall have to say I shall try to be conservative, and as will be seen, I am not one of those persons who believe that the consumer is the one and the only one to be considered. (Paper follows.)

HAS THE MILK STANDARD OUTLIVED ITS USEFULNESS?

By Mr. P. M. Harwood, General Agent Massachusetts Dairy Bureau.

I realize that in discussing this question before a body of this character I am speaking to those naturally prejudiced in favor of a milk standard, and yet at the same time American citizens naturally inclined toward right and justice. I further appreciate the fact that this is a question with two sides, that there is much that can be said upon either. In my treatment of it I shall try to be fair and just. It has been said that "no question is settled until it is settled right." The milk standard is emphatically such a question. There is a well-grounded feeling among farmers that it is wrongly founded and not infrequently works injustice. It seems to me that it is for this body of prosecuting officials, as much as for any one, to work out, if possible, some solution for betterment.

From the standpoint of the prosecutor a milk-standard law is well-nigh ideal. It is iron-clad. Prove the milk to be below the standard, and conviction usually follows. Before such laws were enacted milk was adulterated with water *ad libitum,* and convictions were difficult to secure. Since its enactment, under wise enforcement, much good has been done. But with the lapse of time dealers have adjusted themselves to the conditions. Milk is now manipulated to conform to the standard—skimmed milk is sometimes added or the cream removed in part from the natural milk, if the latter is sufficiently rich in butter fat to warrant it, or poorer milk is mixed with richer milk. To-day some farmers at least are watering their milk. (I have recently successfully prosecuted five such farmers in a single county.) There is more of this, I believe, than ever before, though I do not believe that there is one-tenth part the water sold in market milk to the consumer that was sold before the standard laws were enacted. At that period the watering was practically all done by the dealers, and there was very little milk sold, especially in large cities, that was not adulterated in this way.

This watering is apparently now done because of a feeling that if the milk is up to or near the standard it is good enough for the market, and also that, if not overdone, prosecution will not follow. Yet at the same time there are thousands of cows and a considerable number of dairy herds in this country producing milk not of good standard quality, thus rendering their owners subject to prosecution or annoyance, even though the milk sold is the natural product of the cow. The theorist will answer that such cows should be discarded. The practical farmer knows better; he knows that if he discards these he will have to discard his heaviest milkers. Secretary Wilson says that one-fourth of the dairy animals of the country do not pay for their feed and more than half do not return any profit. If this is true, then it naturally follows that in the interests of the farmer one-half the dairy animals of the country should be destroyed, and yet the probabilities are that few, if any, of these animals give milk below the legal standard. On the contrary, it is well known that the opposite is true.

Massachusetts milk laws are the result of see-saw action, periodically amended for the last fifty years, with the result that to-day we have upon the statute books two main laws regulating the sale of milk, one imposing a penalty of not less than $50 for the first offence for selling adulterated milk, and the other not more than $50 for selling milk not of good standard quality. I find upon investigation that most of the prosecutions are under the latter law, undoubtedly because convictions can be more easily secured, and also because in some, I might even say many, instances the milk is apparently just as the cow gave it.

There are at least four parties interested in the enforcement of the milk laws, and incidentally in the milk-standard question; viz., the consumer, the producer, the pedler, and the prosecuting official. I believe it to be a recognized fact that the food value of milk is not wholly its fat content, nor is it in exact proportion to its fat content. But the commercial value of milk is its fat content, as is proven by the fact that the richness of milk in cream is the only consideration given it by the general purchaser. This granted, it naturally follows that the commercial price of milk should be graded according to its fat content. If, for example, pure milk containing 3 per cent fat sells at 6 cents per quart, that containing 3½ per cent might bring 7 cents, that containing 4 per cent 8 cents, 4½ per cent 9 cents, 5 per cent 10 cents, 5½ per cent 11 cents, 6 per cent 12 cents, and so on; and that containing 2½ per cent might bring 5 cents and that containing 2 per cent 4 cents, but no law should prohibit the sale of milk as it comes from the cow.

If an attempt at adulteration with water were made in case of the 6-cent milk, the price would immediately drop to 5 cents or less, and no advantage would be gained, hence such adulteration would cease.

With the lactometer, the refractometer, and the relation of fat to other solids, added water can now usually be detected, and the culprit punished under a straight milk-adulteration law. Would not the selling of milk upon its guaranteed merits be a good substitute for a milk-standard law as it now is?

A milk containing 3 per cent fat and 8½ per cent other solids at 6 cents would be a cheaper food for the poor man than 4 per cent fat with 9 per cent other solids, or 5 per cent fat and 9¾ per cent other solids, etc., while the man who could afford it would get the richer milk he desires, and the farmer would get proportionate returns for his efforts in producing a milk rich in butter fat. Any farmer who habitually sells a 4-per-cent milk on a 3-per-cent standard market, at the average price, is a fool, and one who sells 2½-per-cent milk in the same market becomes a criminal under the standard law.

In our State producers are being gradually driven from the business, for, while prices are becoming higher, in the cities, the farmer does not get enough to save him. The poor man joins with the rich in buying standard milk at a uniform price, which to some extent makes him pay for a milk which he cannot afford and does not need and, paradoxical as it may seem, does not always get; and meanwhile the producer of general market milk is being driven further and further away, with the result that milk comes longer distances and is older and consequently poorer in quality. Pasteurize it? Pasteurized milk is a good deal like corned beef; it may keep longer, but it is no improvement over nor as good as the fresh article. I feel for my part that so far as cities like Boston, New York, etc., where milk is carried in, are concerned, that the milk standard is a positive injury in the ways indicated.

Under present conditions intelligent Americans are being driven from the business and foreigners are filling their places, in so far as they are filled at all. The old-fashioned farm home is being depleted because the farmer cannot make a living, keep up the farm, and educate one child each. This, to be sure, is not wholly due to the milk standard, but the milk standard as at present taken advantage of is an important factor in embarrassing the dairy farmer.

It seems to me that a milk standard prohibiting the sale of the natural product of many cows is wrong in principle, and particularly so in practice; that, valuable as it has been in the past, it is not so valuable to-day; that in the interest of a better milk, at prices which people can afford to pay, the consumer would be benefited by substituting the system of selling milk on the basis of its fat content. As to the farmer it seems to me that the merit system would work to his advantage, at all events he would know where he was at, and it would relieve him from some forms of imposition and annoyance.

In a recent discussion of the milk-standard question before the Committee on Agriculture of the Massachusetts Legislature many interesting facts were brought out. The standard in Massachusetts is 13 per cent total solids, 3.7 per cent butter fat and 9.3 per cent other solids, in winter; and 12 per cent total solids, 3 per cent fat and 9 per cent other solids in summer. The farmers asked to have a uniform standard of 12 per cent throughout the year, 3 per cent fat and 9 per cent other solids. The committee reported a bill calling for 12 per cent total solids, 3.35 per cent fat, uniform throughout the year. The Legislature referred this to the next session. It is altogether probable that had the committee reported a bill calling for 12.5 per cent total solids and 3.5 per cent fat it would have passed.

It developed at these hearings that the standard was working a hardship to the farmers, and that indirectly it was not protecting the consumer; that the milk contractors and pedlers were using it to their pecuniary advantage, and that the prosecuting officials throughout the State were not rigidly enforcing the law.

It was argued that it injured the farmer: (1) because it made a criminal of him if he inadvertently or otherwise sold natural, unadulterated cow's milk, which, upon analysis, was found to be below the legal standard; (2) because it enabled the contractor to "squeeze the price," *i.e.*, if the farmer was producing below-standard milk, under contract price, he was forced by the contractor either to take the "butter price" for it or else keep it at home; (3) because a man whose milk was above standard could get no more for it on that account, except in a few instances where small contractors paid a slight but altogether inadequate premium; (4) because it compelled most farmers to keep unprofitable cows, as far as quantity of milk goes, in order to average up the quality, while other were forced to discard the fore milk to the amount of several quarts per cow to accomplish the same result; (5) because it discriminated against special breeds of cattle and favored average animals, involving a general levelling process well-nigh impossible of attainment; (6) because it developed that, in general, dairy farming in Massachusetts was not reasonably profitable, and it was strongly urged that if the standard could be lowered or abolished the farmer would be helped to some extent.

On the other hand, the supporters of the standard argued that by lowering the standard more adulteration and manipulation would be possible on the part of those so disposed, and the farmers would be worse off than before. This opinion was held by not a few farmers who privately expressed their opinions upon the subject, but did not appear as a rule before the committee. The arguments were mainly between the advocates of the present standard and those in favor of a lower standard, but to the average listener they tended strongly against any milk standard as at present used.

An idea of the way the law is enforced in Massachusetts may be obtained from the published reports of prosecutions by the State Board of Health, a body which prosecutes more milk cases than any other, or perhaps all others combined, outside of and excepting the city of Boston. The reports of 1902–1907 inclusive give the results of 334 analyses, all but three of which, where prosecution followed, were below 12 per cent total solids.

It developed at the hearing that 12.85 per cent total solids in winter and 11.85 in summer usually escaped prosecution in cities where practically all the milk was sold by dealers.

There may be some question in the minds of those who have not looked into the matter as to whether or not it is a fact that the production of market milk is not profitable in Massachusetts. Listen to the figures:

In 1890 there were assessed in Massachusetts 200,658 cows and 62,549 other neat cattle. In 1906 there were assessed but 181,816 cows and 42,536 other neat cattle. The other neat cattle taxed are largely yearlings and two-year-olds, being raised for the dairy, and bulls kept for breeding purposes.

There are very few oxen and steers in the State.

Here is a falling off in 16 years of 19,000 cows and 20,000 other neat cattle.

Fancy dairying is practised to some extent, in a few instances for profit, but mainly as the fad of rich men. Where milk is produced for near-by markets the business is often run more profitably in connection with market-gardening or the poultry business, or both.

The real test comes in those localities where milk production is for the general market, carred milk to Boston or New York, for example. In such localities the milk business is falling off. If the buildings burn they are seldom rebuilt, the farms are either allowed to grow up to wood and timber, or are sold and run for some purpose other than dairying. In my own town the banner dairy town of the State, there are many farmers who have given up the production and sale of milk for the Boston market. Farms are low in price and for dairy purposes there is practically no demand.

In view of these serious complications and objections to the milk standard as it is now used is it not our duty to seek relief, to point out, if possible, some better way? It seems, therefore, that either the milk standard should be abolished altogether and milk sold upon its merits, or if a standard is to be maintained, that standard should be uniform throughout the United States. Such a standard could now be equitably adjusted on account of the very large amount of data available from State departments, experiment stations, etc., this standard to apply to general market milk at the general market price. *But those making a poorer quality of milk, either from choice or otherwise, should be allowed to sell it for its proportionate value, and naturally those making a better quality should get a proportionally better price.* Either one or the other of these alternatives, or a better, if anybody knows of one, must come, for the present milk-standard laws have too many limitations and objections, and in the light of modern experience have to a degree outlived their usefulness.

DISCUSSION.

VICE-PRESIDENT LADD: Is there any discussion on this paper?

MR. NOBLE: I have been very much interested in listening to this paper, and I believe every one of us here is very much interested in the milk question. It is an important one at this time and too much attention cannot be given to it. There is one thing Mr. Harwood said which I want to call your special attention to, and I think we will all agree with him. I allude to his remark to the effect that we should be interested in educating the consumer. I agree with him there. We in Connecticut send a good deal of milk down into Massachusetts, millions of quarts of it, and they make a good many complaints about the milk. (Laughter).

They say "Your milk is not up to our high standard." The Boston people must have better milk, but they must have it at the same old price. It must not be one cent more expense to the consumer. That is not fair. It is not just. Standards are higher than ever, conditions are different, there are new ideas about sanitation, conditions of barns; but the milk must be sold for the same amount it did ten years ago. People must have sanitation, but they won't pay for it. If a dealer furnishes good milk, better than other dealers in the neighborhood, but charges one cent a quart more for it, his customers desert him on the moment and take a new milkman. The farmers of Connecticut are ready to furnish good, sanitary milk if they can do it and get paid for it. They are not willing to furnish better milk and lose money by it.

There is one thing that we in Connecticut hope for, and we believe they think the same in Massachusetts, and that is that the consumer should be educated to the point where he is willing to pay for good, sanitary milk, so that the farmer is able to furnish it. And then take and establish new standards. This is an important question and one which deserves to receive careful consideration. Some way should be made by which pure milk could be furnished to the consumer, and the consumer should be willing to pay a suitable price for it.

MR. ALLEN, of Kentucky: Mr. Chairman, this is a question to which I have given some thought. I don't think it is so much a question of price as it is a question of getting it to the consumer at the same price with more profit to the dairyman. What is the price of milk in Boston, 30 cents a gallon?

MR. HARWOOD: It retails at 8 cents a quart. The farmer gets somewhere around 3¼ cents of that on the average at his door.

MR. EMERY: Where does the freight come in?

MR. HARWOOD: The freight is taken out of the Boston price. The price to the consumer is 8 cents a quart.

MR. ALLEN, of Kentucky: One remedy would be to have an organized system of distribution. Our present system of distribution is unsystematic and much of it unnecessary. Besides the majority of dairymen who ship milk do not get their just proportion out of the amount which the consumer finally pays for the milk. In Louisville, for example, the consumer pays 30 cents for market milk. The dairyman gets an average of 11 cents for this milk. The dairyman's outfit represents at least three-fourths of the total investment. The dairyman receives profit only on one herd; the middleman receives profit on from ten to three hundred herds. Of course, the lack of system in city distribution of milk causes some loss in the way of over-supply or spoilage which, however, can be always made into butter.

This matter of price must be adjusted in order to give the dairyman more profit and the consumers milk at the same price. It would seem that this can be brought about if the dairymen would organize co-operative distributing-plants and put these plants under the management of men who have been trained in both the theory and the practice of such a work.

Some day we will be civilized enough to prevent the retailing of any milk in a city unless such milk is sold in bottles, bottled at the dairy. Ninety-five per cent of a city's milk supply at the present time is poured to the consumer from can to can and from vat to vat, a long line of open, disjointed tin which must be cleaned each day, and at its best is never thoroughly clean. Besides there is the continual exposure of this openness to contaminations in the baggage car, the station depot, the transfer wagon, the city milk vat, and the wagon delivery. If this method can be eliminated, then inspection can be centred upon the health of the animals and the cleanliness of barns, and the milk can be bottled at the farm, and with a system of co-operative distribution can be delivered to the consumer at the same price which they are now paying and with more profit to the dairyman.

Mr. Wheaton: I have listened to this paper with much interest. I am surprised to hear that the solids in milk are so low in Massachusetts. And I am surprised to learn that the dairy industry is falling off, but I can readily see why it is. They pay from 6 to 8 cents, we are told, for that kind of milk—12 per cent of solids. I think that is paying enough for it, and it is no wonder they are trying to get something that has some solids in it.

Mr. Harwood: The analyses referred to in the paper were those where prosecutions took place and were either cases of watered milk or milk below the standard.

Mr. Bird: How would you educate the people into paying 8 cents for 4-per-cent milk, 12 cents for 6-per-cent milk, and 5 cents for 2½-per-cent milk? Would that graduation in price be regulated by law, or if not, is not the problem still one of educating the people?

Mr. Harwood: It is. I think a statute might be enacted providing for the sale of milk under guaranteed analyses. The outcome of such a measure would be—the real, practical result —that everybody who wanted fat content would pay for that fat content in milk and the farmer would be paid for producing it. The cows which give the greater quantity of milk, Ayrshires and Holsteins, don't give the higher per cent in fat, but, of course, bring in more money because of increased quantity. Sometimes you can produce a quart of milk much cheaper from such animals than from the so-called butter breeds. I am surprised that the Guernsey and Jersey breeders do not take this up. It seems to me that it is much to the interest of the breeders of Jersey and Guernsey cows to have a fair price set for milk.

As our Secretary, Mr. Allen, has alluded to the matter of co-operation, I want to say that I believe that the solution for the hardships the American farmers are facing lies also in co-ope ration

Whether or not we will ever attempt it, I do not know. If the farmers were organized, they could control the milk business of Boston.

Mr. Emery: This paper proposes a change in the tenor of our law, and the remedy is based upon the general claim of merit. If we could meet it there, it should be satisfactory. But suppose we did change the whole tenor of our law, what assurances would you have that these sellers of milk would get paid for the butter fat; and in the determination of the butter fat would there be a fair deal?

Mr. Harwood: I can't say as to that. I can see your point, though.

Mr. Emery: I have had some experience in administering things of that sort. For three years now in our work of testing milk at the cheese factories and creameries, we have ceased to prosecute when we find milk below the standard at the factory, until an inspection has been made of that milk at the barn. The man who is doing the inspecting goes to the farmer and if he finds at the farm the milk is of a high standard, then prosecutes. But in a few instances the milk is found to fall below 3 per cent butter fat at the barn. In some of these last papers we have had the point brought out that milk should command different prices according to quality. That ought to be done, but it is not. I could illustrate by a case in Wisconsin. A cheese dealer was in my office not more than a month ago. He was talking with my assistant. It seems people had been paying the same price for inferior cheese as they were for the better goods, and they were complaining of the condition of affairs. I listened to this for some time and then finally said, "Well, have you dealers been buying cheese for five or six years and paying according to the merit of the cheese—better cheese, higher prices?" And he said, "No, we have not." Now that has taken place. If there were any means by which a man producing a high-quality cheese or milk or butter could get a corresponding price for it, the dairy business would be on a firm basis. But such is not the case at the present time.

Mr. Harwood: What do you say to the proposition of abolishing the milk standard and selling milk on the basis of per cent of butter fat?

Mr. Emery: The point is how that would work out. It would probably turn out that people would buy the cheapest kind of milk.

Mr. Washburn, of Missouri: I have found milk not up even to the $3\frac{1}{4}$-per-cent standard. But it had not been skimmed nor
ered milk. Such milk delivered to a butter factory is passed

in Missouri. The farmer does not sell the milk, he sells the fat and gets paid for the amount of fat delivered. I hold that we have no right to insist on a higher test when the quality of the finished product is not affected and no one is being defrauded.

Mr. Emery: How would that be in cheese?

Mr. Washburn: We have got to have good milk before we can make good cheese.

Mr. Emery: Mr. Harwood speaks of prosecutions for adulterated milk. I presume he means added water? Do you make the test by the refractometer or what?

Mr. Harwood: We examine it three ways, using the lactometer, the refractometer and milk analysis, the latter showing the relation of fat to other solids; also the per cent of ash. The inspector is thus enabled to swear the milk contains added water.

Mr. Emery: In his opinion.

Mr. Harwood: He doesn't say that. But, of course, that is involved. If they asked him on cross-examination he might say that the refractometer showed that the milk was lower than was ever known to be the case in milk just fresh from the cow.

Vice President Ladd: We will now have a paper on "Milk Inspection Work at Richmond, Va.," by Dr. E. C. Levy, Chief Health Officer, Richmond, Va.

MILK INSPECTION WORK AT RICHMOND, VA.

By Ernest C. Levy, M.D., Chief Health Officer of Richmond.

Richmond is a city of 112,467, according to a special census just completed. Just a year ago our Health Department was completely reorganized. Our pure-food ordinance had been on our books for three years, but, so far as milk was concerned, the chief activities of the Department have been confined, as is the history in most places, to enforcing the requirements relating to the food value of the product, and this has been well done.

Two years ago, although not then connected with the Health Department, I made a number of bacteriological examinations of the milk sold on the Richmond market, and found a large part of it very bad. Since then I have been endeavoring to have more attention paid to the sanitary side of the question, but no appropriation for this purpose could be secured until about the end of March of the present year, when, in response to the efforts of the Board of Health, the sum of $2,000 was included in the annual budget for the "sanitary improvement of the milk supply."

On the first day of May this work was begun. Mr. R. H. Curtis, who had been one of the assistants to the Inspector of Milk and Food Supplies since the reorganization of the Department, was promoted to the position of Dairy Inspector, and Dr. Jas. M. Whitfield, Chemist to the Health Department, was engaged to make regular bacteriological examinations. Mr. W. T. Holdsworth, for two years Assistant Inspector of Milk and Food Supplies, was made Inspector on reorganization last year, and has continued his work with enthusiastic devotion.

It is generally understood that the first principle in gaining control of the milk situation is the restriction of forcing all who are in the business to have a permit. Our ordinance provided for this and, moreover, further provided that this permit might be at any time "suspended or revoked, without notice, by the Inspector of Milk and Food Supplies, if, in his judgment, such dairy, dairy farm, or place is found to be in an unsanitary condition." We, therefore, started in this work under an ordinance which left nothing to be desired, although this special part of it had lain dormant for nearly three years.

We have been exceedingly fortunate in securing the services of men who are not only thoroughly competent, but also intensely interested in their work. A good law and good men to enforce it made our start easy.

As soon as it became known that this work would be taken up, all kinds of rumors reached us from the dairymen, who seemed to be more or less stampeded and fearful of the enforcement of requirements which they could not meet. I, therefore, decided to invite every dairyman to a conference for the purpose of acquainting them with the importance of the work and with the methods which we purposed following. At this point it is necessary to explain the factors which made such a conference possible.

Richmond is remarkably situated for a city of 112,000, in that nearly all the milk sold is produced very near at hand. In the first place there were less than one hundred producers sending in milk, and all of these except six were within ten miles of the city. Our problem of reaching the producers was, therefore, very different from that of New York, for instance, with its 35,000 producers, some of whom are four hundred miles from the city.

A circular letter was sent to every producer, inviting him to attend this conference and bespeaking his hearty co-operation in the work. Every member of the medical profession was also invited to be present. The newspapers of the city assisted us very materially, as they are always ready to do in all our work, in arousing popular interest in the movement and extending a general invitation to the citizens of Richmond to be present. The managers of the Mechanics Institute kindly placed their auditorium at our disposal without charge.

This meeting was set for May 9th. Being in Washington on the 7th, I called at the Dairy Division of the Department of Agriculture, knowing the excellent work which they were doing in this connection. With scarcely any hope of a favorable response, I asked Professor Webster if he could not spare a lecturer to be present at our meeting, and, fortunately, though only two days off, he was able to comply with my request, and Dr. Santee packed up on this short notice and came to Richmond.

The meeting was a great success and was in some respects quite remarkable. The hall was completely filled. Conservatively speaking, nine-tenths of the producers were present, three of the six who shipped by rail coming in for the occasion. All of our city dairymen were present, a good proportion of the medical profession, and many citizens. After briefly explaining the object of the meeting and outlining the plans of the Health Department, a short talk was given on the relation of milk to disease. Dr. Santee then followed, in an admirable talk, well illustrated by views. He had spent the day visiting some of our dairy farms and was able to speak of the conditions which he found. The score card was fully explained. Being a practical dairyman as well as physician, he gained the complete confidence of the audience. After these talks the dairymen present were invited to ask questions and make any statements which they might desire to their heart's content, and they proved themselves by no means bashful in availing themselves of this invitation. From many things which we heard, we knew that at least some of those present had come prepared to criticise everything—indeed, to give the Health Department a good warm "roast," but the candid, open manner in which they were met completely disarmed them. They were made to understand that we wished to meet them in a friendly spirit, and they entered fully into this.

I have gone rather at length into an account of this conference with the dairymen because I believe that it accomplished immense good, and I strongly recommend this to every city on starting in with work of this kind. Of course, it is practicable only in places situated like Richmond in respect to the number and nearness of the producers.

In the inspection of the dairy farms the score card of the Dairy Division of the U. S. Department of Agriculture, which has been so fully described by Professor Webster this morning, has been used from the start. I desire to recommend this score card most heartily. Without some such method of recording the many points about each dairy farm, one can have only general impressions, and on the second visit it is impossible to compare accurately the conditions of the two visits. Moreover, with the score card every point must be noticed. We were greatly helped again by Dr. Santee, who returned to Richmond on the 20th of May and remained five days, making the rounds with our Dairy Inspector and instructing him in the use of the score card.

We have not as yet adopted any compulsory minimum score, preferring first to get all the places scored up. This will, however, doubtless be done later. On the first visit to each farm advice was given as to the necessary improvements, special stress being laid on cleanliness and on prompt and efficient cooling of the milk. Those places which were found in especially bad condition were at once notified of the changes which they would have to make.

After the second visit letters were sent to each producer whose place was in a condition not satisfactory to our Department, giving him, as a rule, fifteen days in which to meet our requirements, under penalty of suspension of his permit if this was not done. Very few of the producers were equipped with proper milk houses and coolers, and almost all of our letters related to this, as well as to cleanliness.

Along with the score card, we have installed the following cards (page 90) by which track is easily kept of each producer.

Besides the alphabetical arrangement of these last cards, there is also a "1 to 31" index. When a letter is sent to a producer, giving him a certain time in which to meet our requirements, the proper reminder is at once placed in front of the date on which his time expires. Thus, if a notice is sent out on the 5th of the month, giving fifteen days, a memorandum is at once put in front of 20, and when the 20th arrives the inspector finds a list ready of the names whose time is up on that day. One of the secrets of success, we believe, is the prompt following up of every case. The dairymen must know that, if they have been given a certain time, when that time is up the inspector will come to his place without fail, and if the requirements have not been complied with, the permit will be suspended.

I have modified the score card in one respect. Each score card is numbered, serially, and this score number is entered on the index card. It is thus possible by the index alone to see, in a few seconds, the run of scores for any given man, while, if more detailed information of his standing is desired, the index number enables us to turn at once to each of his original scores. The score cards which I am now having printed have a margin reserved for binding. Thus the scores will be matters of permanent record, while the index will enable us to refer in a minute to every score of each man.

DAIRY INSPECTION

INSPECTION							REMARKS
DATE	SCORE NO.	SCORE					
		1	2	3	4	T	

The first lot of warning notices were sent out on June 5th, to 12 producers, giving them 15 days in which to clean up and install a "proper milk house, separate from the stable or any living room, free from dust and objectionable odors, and provided with an aerator, of a kind approved by our Department, for the prompt and efficient cooling of the milk." One day was allowed for the receipt of those letters and on the 21st our Dairy Inspector visited each of the twelve places. Two had gotten in first-class shape; 2 had made satisfactory progress and had good reasons for not having completed the work; 2 announced that they preferred going out of business, while 6 had made no pretence whatsoever of complying with our requirements. The time of the 2 who had not completed the work was extended, the permits of those who wished to give up the business were revoked, while those who had done nothing had their permits at once suspended. Three of these latter stopped selling milk and have since gotten into satisfactory shape, but 3 of them ignored our action and continued to sell.

These last cases brought us up to the really crucial point of our work. Of course they were at once summoned to Police Court, and their cases came up on July 9th, just five weeks from the sending of the original notices. All 3 of these were fined ten dollars, although 2 of them had meanwhile met our requirements. This did not save them from the penalty of having ignored our orders and of selling after their permits had been suspended. Only 1 of them had continued to go on in the old way, and the Police Justice announced that if he was found selling milk before we said so, he would impose the maximum fine—one hundred dollars—and revocation of his permit.

The moral effect of this prompt and firm conviction of those who had defied our orders has been excellent. Most of the producers have met us in the proper spirit. Our efforts throughout have been to get the dairymen and producers to feel that we are their friends, and that they would themselves be the gainers by meeting the requirements of the Health Department. Cordial relations have thus been established in almost every instance and a large proportion of the producers consult us freely on every point. The few, however, who have preferred to be obstinate and ugly have been made to understand that if they would not comply pleasantly they could be made to do so forcibly if they wished to continue in business.

Even the imposition of a fine has not meant the rupture of friendly relations. I took pains to get the newspapers to note, in reporting these cases, that two of the men had complied with our requirements before their cases came up in court, and that their customers could feel safe in continuing with them. This had an excellent effect, and one of these parties came to the office next day to say that he appreciated our kindness; that he had been well treated by us throughout, and that we would have no more trouble with him. He now has a good place, and is one of our best dairymen and an enthusiastic supporter of our work.

During the month of June—our second month of this work—we suspended 10 permits and revoked 7. Seven new milk houses were completed and 2 cow stables, while 20 new milk houses and 3 new stables were found under construction on July first.

The milk business of Richmond is partly in the hands of two large dairies and partly carried on by independent retailers who produce their own milk. Daily sales amount to about 5,000 gallons, of which one of the city dairies (supplied by 37 producers) handles, roughly, 2,000 gallons, and the other (supplied by 19 producers) handles 1,000 gallons, leaving 2,000 gallons retailed by 30 producers. The total number of producers, therefore, some having given up the business, is 86, a very small number to produce 5,000 gallons of milk, supplying a city of 112,467. As mentioned above, only 6 of the producers are at a greater distance than 10 miles from Richmond.

All along we have had regular bacteriological examinations made of samples collected from the city dairies and from the delivery wagons. These have shown a marked improvement, though not yet as good as they should be. It is too soon as yet to look for any results in a lowered infant mortality, but this must surely follow, as it is now universally conceded that dirty milk is the chief factor in the gastro-intestinal disturbances of bottle-fed infants during the summer months.

Much work remains to be done. The highest standard cannot, naturally, be reached in a few months, but the work is proceeding along systematic lines and will be prosecuted until every producer has been gotten into line.

A few pathetic cases have come up, poor people with a few cows, in miserably inadequate places, with no facilities for the proper handling of milk or even for decent cleanliness, who stated that they were financially unable to meet our requirements.

These cases have been most trying to every one connected with our office, but we have been forced to be firm in dealing with them. Our babies will suffer and die from bad milk without reference to the financial condition or the worthiness of the owner of the cows from which it comes. The primary difficulty in these cases, of course, is that heretofore in Richmond it has been held that any one who could buy a cow or two of any kind and keep her in any old shed was qualified to sell milk, and, indeed, it is astonishing to find the number of people—good families—who take from such sources, believing that they are getting the best milk possible because the producer of this class has so few cows to look after. We have to teach the people that the above is all wrong and that only those who are able to invest a small amount of capital in the business can produce good milk. Others must look for some other means of gaining a livelihood.

In addition to the work above outlined, all looking to serving better milk to the people, we have realized that a considerable part of the responsibility in the milk question rests with the people themselves, and that careless handling of milk in the home will largely counteract our efforts. To meet this difficulty we have gotten out the following circular:

CARE OF MILK IN THE HOME. Issued by the Health Department of Richmond, Va. This circular contains information of importance to every housekeeper and especially to every mother. Please read carefully and preserve for future reference.

OFFICE OF HEALTH DEPARTMENT, CITY HALL,
RICHMOND, VA., July 10, 1907.

The quality of the milk supply of a city has a great deal to do with the health of the people. The Health Department of Richmond is doing everything in its power to make the milk supply of this city all that it should be from a sanitary standpoint, and the dairymen are actively responding to our efforts. Since the first of May, when this work was begun, there has been a very great improvement, though much still remains to be done.

But it is not sufficient that the milk should be clean and pure when delivered to you. Unless the proper care is taken in your home after the milk is received, you will not have good milk in spite of our efforts and the work of the dairymen. It is, therefore, important that you should carefully follow the instructions given in this circular—not just to-day, but every day, the whole year round.

Milk is the most valuable single article of diet known to man, and *it is the only proper food for babies under one year of age, when they cannot get the nourishment which nature intended for them—their mother's milk.*

But, while good milk is such an excellent food, bad milk is one of the most dangerous foods possible, being responsible for a large part of the bowel troubles of babies and for the death of very many of them.

The chief means by which milk is often made dangerous are: (1) dirty methods of keeping and milking the cows, dirty milkers and dirty milk vessels; (2) failure to cool the milk promptly and keep it cold until used; and (3) keeping the milk too long before it is used.

Bad milk, therefore, so far as danger to health is concerned, is dirty milk or warm stale milk.

We are rapidly getting the dairymen of Richmond to understand these facts, and we can promise you that the milk supply of Richmond will soon be among the best in this country.

In the home, as on the farm and in the city dairy, cleanliness and cold are the two essentials in the securing of wholesome milk.

All vessels used for milk should be thoroughly cleansed as soon as empty, using first clean *cold* water for rinsing, and then scalding them with hot water containing a small amount of washing-soda or borax. Do not use soap for this purpose. After thorough washing, the vessel should be rinsed with clean water and then well aired and sunned, in some place where they will be protected from dust.

If your milkman delivers his milk in sealed bottles, see that he does not leave these in a place where they will be exposed to the heat of the sun before being brought into the house. They should be taken in as soon as possible and stood at once in the refrigerator until used. As soon as you have emptied a bottle, wash it out carefully. Do not return to your milkman bottles containing stale milk.

If you are getting bottled milk and if a case of typhoid fever or other "catching" disease breaks out in your house, you should tell your milkman at once, and he should not take away any milk bottles from your house until after the case has gotten well, as one of these bottles might otherwise be the means of carrying the disease to other houses. We will instruct the milkman what to do in such cases.

If your milkman does not deliver his milk in bottles, it is best to have him deliver it directly to you or your servant, and you should see that it is put on ice immediately and kept cold.

The practice of putting out an uncovered pitcher or other vessel for milk the night before cannot be too strongly condemned.

Such a pitcher or vessel, exposed to the dust and dirt of the street, will collect thousands of germs before the milk is put into it. Many of these may be dangerous to life and health, besides which they will certainly cause the milk to sour in a short time and become unfit for use. The purest milk received in such a vessel may become as bad in a few hours as the worst milk from a dirty farm.

If you are compelled to stand out a vessel to receive your milk, provide yourself with several glass preserve-jars, which should be used for this purpose only. They should be kept well washed and aired as above described. Get jars with clamp tops. Those with screw tops are hard to keep properly cleansed. Do not use the rubber ring which comes with most jars, as it is difficult to keep clean and the jar will be sufficiently tight without it. Instead of a preserve-jar, a bowl, covered by a plate, may be used. A pitcher cannot be tightly covered on account of the projecting spout.

Give your own personal attention to your milk vessels.

The milkmen of Richmond state that many persons in this city have the idea that if milk is delivered to them warm this is a proof of its being fresh from the cow, and hence better. So far from this being true, only by cooling the milk as soon as it is gotten from the cow is it possible to prevent rapid decomposition of the milk in warm weather. The regulations of the Health Department (which have been adopted for your benefit) require that all milk sold in Richmond shall be cooled as soon as possible after milking.

While bad milk is the chief cause of bowel troubles among young infants, it is by no means the only cause. Improper feeding is another cause. Never give anything but milk to a child under 1 year, unless advised to do so by your family doctor.

If your baby has any bowel trouble, call in your doctor at once, so that the case may be treated before it has gone too far.

Never buy milk for the baby from a grocery store. Store milk has often been kept over from the day before, and only too often without ice, or in an open pitcher in a refrigerator in which meats and vegetables are also kept. It is dangerous as food for babies.

By paying careful attention to the above instructions, you will do much toward keeping your family well during the summer (and especially the little ones who live on milk). You will also find that your milk will keep longer and taste better.

Keep this circular and read it from time to time until thoroughly familiar with its contents. If you change servants, be sure to give instructions to the new ones in the care of milk in your home.

Twenty thousand of these circulars were gotten out. Every person who delivered milk in the city was given a supply, accompanied by a letter asking him to leave one of the circulars at the house of each of his customers on a single day—Saturday, June the 13th. Each of our three daily newspapers had a copy sent them, with a request that they publish it in full on the same day, together with an editorial, directing attention to the importance of the subject. All of them cheerfully responded. In this way, not only every taker of milk, but also every other citizen of Richmond had his attention called to this matter on one day.

There are several problems in Richmond which remain to be solved. The chief of these are the evil of selling milk at grocery stores, and the even greater evil of the number of persons who keep a single cow, within the city limits, and sell milk to their neighbors. These questions will be taken up later, after other matters have been thoroughly gotten into shape.

Although this work has been going on in Richmond only two and a half months, we feel that excellent progress has been made. Our ordinance is all that could be desired. The Board of Health is thoroughly in sympathy with the work, and all the officers who are entrusted with carrying out the law were appointed by the Board purely on the ground of their fitness. These officers are capable and enthusiastic. Our Police Justice has shown that he will enforce the law in those cases which do not comply with our orders. In Richmond the Health Department is as completely divorced from politics as possible, and in dealing with the dairymen we have no complications due to political interference. Nearly all our producers are near at hand and can be frequently inspected. The public is thoroughly in sympathy with our work, and the newspapers are giving us their unqualified and active support. The producers themselves are, with very few exceptions, actively co-operating with us. With all these points in our favor, there is every reason for believing that within a very short time the milk supply of Richmond will be among the best in the entire country.

VICE-PRESIDENT LADD: Dr. J. H. Kastle of the U. S. Marine Hospital Service is present and will make a few remarks.

DR. KASTLE: I would like to say a few words on the sanitary aspect of the milk question. I have been interested in listening to the papers on this subject, and, while I am not a member of this Association, I think you may be interested in the milk question as it now presents itself in Washington. About a year ago the U. S. Public Health and Marine Hospital Service undertook an investigation into the cause and origin of typhoid fever which then prevailed rather extensively in Washington. In spite of the fact that a new filtration plant had been but recently installed, there was found to be practically no decrease in the death-rate from typhoid fever. From June to November, 1906, a study was made of 866 cases occurring during this interval. Fifteen per cent of the cases were found to have been imported, 10 per cent were traced to infected milk, and 6 per cent were due to contact. We were unable to decide definitely whether or not the water played any part. From a sanitary aspect, however, the milk conditions were found to be very bad indeed, despite the fact that as a general thing the milk conformed to the usual chemical standards. In fact laws regulating the percentage of fat and total solids have been in operation in the District for a number of years. The result is that but few milks show less than 3.5 per cent of fat, and only a few give a refractometer reading lower than 40.5.

Our investigations showed that the milk sent into Washington to the retail dairymen comes from a large number of sources. Indeed, in some instances, it is almost impossible to locate the source of some of the supply. It is often kept for twenty-four hours before it reaches the consumer. As a general thing, it has been found to be dirty and is not preserved nor delivered to the consumer at a sufficiently low temperature. The total number of bacteria ranged from an average of about 70,000 per cubic centimetre in pasteurized milk to over 300,000,000 per cubic centimetre in certain specimens of raw milk. It was found in some cases that rooms in which the milk was kept in retail dairies opened directly into the room in which a typhoid-fever patient was being nursed. It is well known that milk is one of the best media for carrying the typhoid infection. It, therefore, seems to me that one of the most vital questions now before the people concerning the milk supply is, not the amount of fat or total solids which the milk shall contain, but the question of the degree of cleanliness required of milk delivered to the consumer. It should be kept free from dirt and should be kept as cool as possible after being drawn from the cow.

Dr. Gudeman: Dr. Kastle mentioned that milk in Washington contained 300,000,000 bacteria per cubic centimetre. Then isn't the appearance changed to the consumer? Couldn't he tell by its appearance that something was wrong with it?

Dr. Kastle: No, he could not. It sometimes has a slightly sour odor and taste; but this, I believe, would escape the notice of the average person. Even in the chemical examination of milk we were unable to form any opinion regarding the number of bacteria present until after the bacterial count had been made.

Vice-President Ladd: We will now have the address on "The Dairy Interests of Colorado," by Hon. B. G. D. Bishopp, State Dairy Commissioner, Denver, Col.

Mr. Bishopp: A few days ago I noticed in one of the publications which comes to our office an article on this Convention of the Interstate Pure Food Commission and, in commenting upon the speakers on the programme, it said that they were all men of experience and that they were not young men who had not yet won their spurs. I certainly thought that would make me exempt from appearing on this programme. In Colorado we don't win our spurs; they give them to us. I mean they give us the real thing in spurs. But if we don't make good they take them away from us and put us to herding sheep. (Address follows.)

THE DAIRY INTERESTS OF COLORADO

By Hon. B. G. D. Bishopp, State Dairy Commissioner, Denver, Col.

I feel that I can give you very little that is new, coming as I do from a Dairy Commission which has been in existence over ten years and yet is just beginning to do things for the dairy industry in our State.

Lest I forget, I want right here to present the cordial invitation of the Governor of Colorado, the Mayor of Denver, the Denver Chamber of Commerce and the Convention League to hold the 1908 Convention of this organization in our city of Denver.

Before the date of that convention we will have a convention-hall second to none in the United States, and we certainly have as many natural attractions within a one-day's excursion from Denver as any other city. If you have never waded our mountain trout-streams and caught the "speckled beauties," you have certainly missed some of the best sport of life. When I think of those banks of snow which I gazed out upon five days ago from our office windows in the Capitol, and which are in view all summer, I feel very much like a polar bear suddenly transported into the tropics.

We invite you to meet with us and enjoy our invigorating climate and, in true Western style, "to sit up," "fall to," and "help yourselves" from anything we may have.

I am particularly anxious to secure the 1908 Convention for Denver on account of the great advantage it will be to our new Pure-Food Commission, which goes into effect January 1, 1908, and is under the State Board of Health, distinct from the Dairy Commission.

In speaking of the dairy interests of Colorado there is much more to be said regarding her prospects as a dairy State than upon the dairy industry of the present. Our dairy manufacture is done in less than one hundred creameries and cheese factories. It has been shown, however, that butter and cheese of the finest quality can be made under our conditions.

The enormous quantities of alfalfa grown at the rate of from three to five tons per acre, and now used to fatten hundreds of thousands of lambs for your Eastern markets; our immense crops of small grains and thousands of acres of rich pasture grasses give us the foundation for a magnificent dairy industry.

You cannot find purer air or purer water than comes off the snowclad Rockies, supplying the foot-hills and adjacent plains. Add to these advantages of climate and feed the best of roads and such markets as only prosperous cities and rich mining camps afford, and there is little reason why Colorado should not be among the great dairy States of our Union.

Now it becomes necessary to show why under such favorable circumstances our State has not done more dairying. There are several reasons. From the agriculturalist's standpoint ours is a new State. The ranging of great herds of beef cattle has gradually given way to agriculture by irrigation. Recently other large tracts are being handled by dry-farming methods. Other lines have appeared more tasteful to the farmer than dairying, but when the soil becomes depleted by heavy cropping of the sugar beet we expect to bring dairying to the rescue. The careless methods of the "new country" must be changed.

Probably the greatest hindrance to dairying in Colorado has been the extensive illegitimate sale of oleomargarine represented to the consumer to be butter. Two carloads per week of this imitation have been sold at retail in Denver and outlying towns as butter and at ranch-butter prices.

I understand that until the last two months this traffic had gone on without interruption for several years past. While our State law gives us no authority in any line of the dairy business except on imitations of butter and cheese, this matter was almost entirely overlooked by the Dairy Commission the past five or six years.

To show you the attitude of our lawmakers—one of our State Senators, representing Denver County, gave my deputy and myself the reasons for the failure, in the last session of the Legislature, of a bill giving us enlarged powers regarding milk standards and milk and cream supply generally. He is a wholesale dealer in oleomargarine. He said the appearance of the word "butter" in the bill killed it.

We were told on entering the office three months ago, by our predecessors, that nothing could be done toward stopping the illegal sale of oleomargarine in Colorado. Indeed, it looked as though very little could be done with one assistant, no stenographer, no laboratory, but $500 per year travelling expenses for two of us and no appropriation for any other work.

Representatives of the meat-packers are with us at these sessions, and fine fellows they are, but I should like to see the complexion of the representative of the packers who can cause to continue the condition of gross fraud in the sale of oleomargarine for butter and without compliance with revenue laws as has existed in our State for several years past.

We have received very encouraging words from three of the largest creamery companies, assuring us of an organization of the dairymen of the State soon. No organization of the kind exists at present.

We expect to give the butter-maker a square deal by putting oleomargarine out of open competition with butter on the market. When lawmakers and courts fail, we find that public opinion, properly moulded by means of the newspapers, is an ever-present help.

We believe that "milk is the keystone to the arch of the pure-food crusade." The only method we have of fixing standards for milk or cream, or controlling the city supplies of these, has been to urge the passing of suitable city ordinances. We have gotten in touch with the officials of about a hundred cities of our State by letter, very few having adequate ordinances. We have been requested to meet with the councils of several cities and have draughted ordinances for something like twenty cities at their request.

I must take exception to newspaper statements recently made and credited to the Department of Agriculture (I believe by mistake, however), to the effect that the milk supply of the cities of

Colorado was the poorest in the United States. On the contrary, the interest which has been manifested recently both by city officials and dairymen, together with our natural conditions, bids fair to make the milk supply in the cities of Colorado the best in the United States.

Over twelve hundred head of dairy stock have been tested for tuberculosis within the past three months in our State.

Within the past two weeks, under the direction of the Colorado Dairy Commission, the tuberculin test has been applied to three hundred and eighty-two head of dairy cows.

These tests and their results bring out forcibly two very important facts regarding the Centennial State. The first is the remarkable healthfulness of Colorado climate for the cow as well as for her master. The second is the progressiveness of her farmers and dairymen.

The tests were made by Messrs. Tripp, McCausland, Eldredge, and Morrow, students and graduates of the Colorado Agricultural College, under the supervision of the State Dairy Commission.

Of the 382 head tested, but 6 reacted to the test, making about 1½ per cent diseased. These 382 cows constitute 15 herds representing three sections of the State about one hundred miles apart.

Of 224 head kept upon the divide between Denver and Colorado Springs and furnishing milk to the Carlson & Frink Co., of Denver, but one animal reacted to test and that to so slight an extent that she could be regarded only as suspicious. We have no record of a Colorado herd running higher than 15 per cent, and nearly all tests ever made in the State have shown less than 5 per cent diseased.

These latest results we regard as remarkable. The only assignable reason for so little of the disease being brought to this State in the numerous recent shipments of dairy stock from the East is that these shipments were bought subject to the tuberculin test and tested before coming to Colorado.

There is no law in Colorado requiring the testing of cattle kept for dairy purposes, and while the Dairy Commission has been striving for the past three months to secure ordinances in all cities, enabling control of city milk and cream supply, but few of our cities have strong ordinances on this subject.

The progressive spirit of the Colorado dairyman is attested to by his willingness to accept scientific methods without legal enactment. All tests made under the direction of the Commission have been with the agreement on the part of dairymen, that any cattle found by the test to be diseased should be branded on the forehead with the letter T; so as to prevent diseased animals being sold or exchanged without apparent evidence to the prospective purchaser of the diseased condition, especially during the period of immunity to test, usually conceded to be ninety days following a test.

The owners of diseased animals have been willing in all cases to isolate the diseased stock from their herds and discontinue the sale of their milk at the suggestion of the Commissioner.

I might mention here that the tuberculin test has been the source of another gross fraud. In this case it has been practised by the veterinarian who in our State charges as a rule $2 per head in large herds and $3 per head where but a few are tested. This fraud has led me to place the branding clause just mentioned in city ordinances which we have draughted and in all agreements with dairymen who have had their herds tested under my supervision.

Let me cite a specific instance. A veterinarian with one of the largest practices in Denver tested a herd of forty-two cows, making the usual charge, and declared twenty-one of them diseased. He bought these twenty-one good dairy cows said to have reacted, for $20 per head, drove them about forty miles away, and contracted for their keep with a farmer for one-half the proceeds from milk sold from them and one-half their increase.

To the consumers of milk the only comforting feature of the situation is that no doubt but one or two of the twenty-one head are tuberculous instead of the whole number condemned.

This case was known to the State Veterinarian and the State Board of Live-Stock Inspection, but was overlooked entirely by them.

We have gathered the data I have given with some difficulty.

We expect to give this veterinarian some free advertising and reduce the objections on the part of the veterinarians generally to the charge of 50 cents per head, by representatives of our office who are college men but not graduate veterinarians. It is our aim to make dairying a more popular and a more profitable industry than ever before in Colorado.

VICE-PRESIDENT LADD: The next thing on the programme is a paper on "Butter- and Cheese-Factory Sanitation," by Prof. A. H. Wheaton, Dairy and Food Commissioner, Brookings, S. D.

BUTTER- AND CHEESE-FACTORY SANITATION

By Prof. A. H. WHEATON, Dairy and Food Commissioner, Brookings, S. D.

I FEEL highly honored at being asked to address a convention of men whose deliberations are of such great moment to all the people of the United States of America. And while I am proud of the distinction, I cannot help but feel that your Secretary assigned a very large subject to a very small man. When I received the notice from him my first thought was, What will the rank and file of the members expect of a man who hails from the heart of the great American desert on such a subject as this? Not having had the pleasure of meeting with you before, I was unable to judge, and gave it up as being beyond my ability to solve. My next thought was, that your Secretary had probably been reading some of the wonderful stories of the wild and woolly West and had put me on the programme just to satisfy his curiosity as to whether or not it is true that "fools rush in where angels fear to tread." Being a Western man, I decided that I had a certain reputation to maintain; to wit, that no truly Western man was ever appealed to in vain, whether the call was one of mercy, for aid to the distressed, or to clean out a rustler's ranch. And this was what caused me to decide that I would face the music and let the criticisms fall as they would. Therefore, I have divided this subject and will take up the butter factory first.

The scheme for the sanitation for the butter factory should be taken up and earnestly considered before the location of the site has been determined upon, and the services of a competent engineer employed to provide ways and means for the two most important things necessary to a perfect sanitation; namely, water supply and perfect drainage.

I have known of a factory which was located in a basin for the sole reason that a supply of water could be easily obtained there with but very little expense. The supply was ample and at first was of good quality, but after a few years, with the drainage of the creamery running on top of the ground and settling in the lower places, it developed a condition easier to imagine than to describe. In fact, this was to me a positive proof that two things can be put together and made one. This was a practical demonstration that it was possible to unite the source of water supply with drainage and have the two subjects all in one, with all the attendant results. *Pure water is as necessary to the success of a creamery as it is to the health of a family.*

Adequate and perfect drainage is the next most important consideration, both of which should be determined before the factory is built, and for these reasons no butter or cheese factory should ever be built on low ground in close proximity to a slough, or near a body of dead water, but should always be on high ground where the air is pure with free sweep of the prevailing winds.

To make perfect sanitation easy, the floors should never be constructed of wood, which absorbs more or less of the milk and wash water and furnishes a splendid media for germs of all kinds, but should be constructed of concrete and cement extending up the sides of the work-room at least three feet. The floor should slant to drain one-fourth inch to the foot with a centre drain having the same pitch to the trap, connected with a drain which will carry all washings underground to at least forty rods from the factory. The windows should be so constructed that there will be no dark places or corners obscured from the light of the sun.

Having procured all this, then the next step, third in importance, is the placing of the machinery in such a manner that every part of it is of easy access to the operator with as few pipes as possible, short and smooth inside.

Water tanks connected with steam pipes for heating, placed so that boiling-hot, clean water may be in easy reach of those whose duty it may be to wash and cleanse the utensils used or which may come in contact with either milk or cream.

After these have been supplied and all facilities furnished for a perfectly sanitary system, then it is up to the operator to keep it in a clean condition, and here is where the shoe pinches.

If I had but three months to educate a young man or woman to make butter in a factory, I would spend at least one month of that time on lectures and practical demonstrations of the efficacy of hot water in killing bacterial germs and cleansing milk utensils.

Hot water and sunlight are the two great cleansers to be depended on for keeping a butter factory in perfect sanitation.

Cleansing-powders and compounds may be used on the floors, in the drains, and to cleanse platforms and the like, but never to be used to cleanse any vessel, pipe, pump, or vat the surface of which comes in direct contact with the milk. Soap of any kind should be used only to wash hands, windows, woodwork, etc., never on any surface which comes in contact with milk or cream.

CHEESE FACTORIES.

The cheese-maker has vastly more to contend with than the butter-maker; or, in other words, if he is careless about sanitary conditions, the resultant effect is increased a hundredfold. No less a person than ex-Governor Hoard once said that it required a hundred times more knowledge and experience on the part of the operator to make good cheese under all conditions than it did to make good butter. After thirty-three years of experience in, and study of, the subject I am inclined to coincide with him in that opinion.

While the development of certain bacterial germs in the manufacture of butter have to be watched only for a comparatively short space of time, with cheese they enter into the very life of the product from the start until the cheese is made, cured, and placed on sale, which may be within a few months or may extend over a period of a year or two, sometimes even more than that.

The older the cheese the better it is, provided it is properly made, properly cured, and properly handled after it is cured, until it reaches the consumer.

The elements of development and the decomposition germs mingled with the enzymes of the calves' stomachs, called rennet, determine largely the quality of the cheese which carries with it the palatability and digestive qualities as well. If then we take into consideration that injurious germs, when incorporated into cheese, are getting in their work of destruction from the moment the milk is received at the factory (and perhaps even before) until the cheese is consumed in some foreign land, then we can comprehend the necessity of perfect sanitation in cheese factories.

"The burned child dreads the fire," and when I tell you that I once burned nearly a carload of cheese which was made unfit for food because of the little festive bacilli which worked night and day to bring about my downfall, you will know that I am speaking from experience. This was not the result of unsanitary conditions in or around the factory, but, rather, of conditions at the farms where the milk was produced and of a lack of knowledge on my part to overcome their evil effects. I learned a lesson then in the old school of experience which I have never forgotten. I paid the tuition, which is always high, and have been trying ever since to teach others to avoid the rocks upon which my bark was nearly wrecked.

We of the craft have so often heard it said that it is absolutely necessary to have everything perfectly sweet and clean in the manufacture of butter, because butter will absorb taints and odors so readily. These teachers never mention cheese in that connection, but I want to go on record as saying that this is also true in regard to cheese.

The evil effect of insanitation can be overcome in the production of butter temporarily, perhaps until the butter has been consumed, if within a few days or weeks; but the process of making cheese is, in a sense, the process of artificial digestion, which may be made to work fast or slow, at the will of the expert operator, according to his knowledge of, and ability to impart to others, the true principles of perfect sanitation, not only at and around the factory, but at and around the homes of those who supply the milk with which the cheese is made.

I said in the beginning that this was a very large subject, and will say again that it is entirely too large a subject to be covered in a paper so constructed that it will not exhaust your patience in listening to it, nor occupy too much time in reading it, and so I have purposely left the real meat of the coconut to be brought out in the discussion which may follow, only suggesting in a general way the great importance and possibilities of the subject.

A cheese factory should be so constructed that all the requirements which I have suggested for the appointments of a creamery should be present, and in addition a curing-room so built, in which temperature and moisture are absolutely under the control of the operator.

I can best express my idea of the necessary sanitary requirements when I say that as the operating-room of a surgeon must be sanitary in all respects, so should be the creamery and cheese factory to insure the very best results. This may seem to be putting it rather strong, but in the main I believe it is true. To my mind it is a travesty on the intelligence of the American people that we have to go across the water to Denmark and Sweden to learn what true milk sanitation is.

I know we have institutions of learning which teach thorough sanitation in connection with the handling of milk and all dairy products in this country, but our National Government does not interest itself to the extent other countries do in these matters. Perhaps the reason is to be found in the fact that we do business on a much larger scale, and in the dairy sections of Europe the people have not gone money-mad to the extent we have here. Be this as it may, we surely are in need of laws, rules, and regulations which will compel better sanitary surroundings in the manufacture of all dairy products.

We Americans are filled with pity and sympathy for the unthinking boy who shoots his playmate with the gun that he did not know was loaded; we also pity the family who, by reason of not having taken the necessary precautions to prevent it, become afflicted with typhoid, diphtheria, or other infectious or contagious diseases, but what shall we say or feel in regard to the creamery or cheese-factory operator who has his place of preparing foods for the public swarming with all kinds of dangerous germs by reason of the lack of the necessary sanitary precautions? He, too, may say that he did not know they were loaded. But he *should* know and be compelled to take notice. Close inspection and rigid enforcement of well-known sanitary rules under the Federal and State laws is the remedy I would suggest.

Thorough sterilization with hot water for all vessels used which come in direct contact with milk or cream, disinfection with formaldehyde of floors, platforms, and driveways, will effectually cleanse the surroundings, whether internal or external, of any creamery or cheese factory, if used liberally and often. One part of formaldehyde to sixty-five parts of water will make a solution which will kill any germ found loafing around any milk dispensary or butter or cheese factory.

If I may be allowed to go a little further and touch upon the cream as it is received at some of the factories, we may find a very prolific source of the direct cause of insanitation in and around some factories. Close competition for business induces factory operators and solicitors for cream to encourage dairymen to keep their cream for too long a time before delivering it to the factory, or it is hauled too long distances to the railroad station, then over too long a route by rail before reaching the place of manufacture.

And who is to be blamed for this? Either the manager or the operator, or both, all for the purpose of making a little more money at the expense of the quality of the goods produced.

When will we Americans learn to consider quality first and profit second?

And when will we learn that quality and perfect sanitary conditions go hand in hand from the cow to the consumer? Not while the conditions are such as have prevailed for the past year or so, at least not while first-quality butter is scored only one to two points above firsts, and prices rule universally as high as now.

We Americans love money more than reputation. Money obtained by the least effort is the route most sought and encouraged.

So it has been impressed on my mind more forcibly than ever before that, to obtain anything like sanitary conditions in and around our creameries and cheese factories, it will require the rigid enforcement of our food and dairy laws, and rulings by the food and dairy inspectors of all the States, including the Federal authorities.

VICE-PRESIDENT LADD: We were to have had a paper on "Adulteration in Confectionery," by Prof. C. B. Cochran, State Chemist, West Chester, Pa., but he is not present and this completes the programme for to-day. There is to be an executive session of the Association at the close of this session. Those of you who are members of the Association will please remain for a few minutes.

The Association went into executive session, and after discussion the following motion was unanimously adopted: That Messrs. John Wiley & Sons, of New York City, be requested to publish the proceedings of this Convention as soon as convenient for them to do so upon the same terms as were had with the publishing firm the previous year.

MR. ALLEN: The official photographer is here, and we want to have a group picture taken at the close of this session and would ask all the members to go out on the veranda at the end of this meeting.

VICE-PRESIDENT LADD: There is the matter of appointing a committee on resolutions and a nominating committee. Are there any other committees to be appointed?

It was moved by Mr. Kracke and seconded by Dr. Shepard that the Vice-President appoint a committee on resolutions.

The motion was carried.

VICE-PRESIDENT LADD: The next committee is the Nominating Committee of five.

DR. BRYAN: It seems to me that three ought to be enough on that committee. I move that the Chairman appoint a nominating committee of three.

Seconded and carried.

VICE-PRESIDENT LADD: There are several other committees already appointed; their chairmen, as indicated on the last page of this programme, will be called upon for their reports later on. I think they should call their respective committees together and prepare whatever reports there are. I presume everybody understands that these committees make their reports to the Committee on Resolutions, when prepared, and they are handed in by the General Committee on Resolutions. Then there is another committee which must be appointed. This committee will have to do with a matter of more than general interest; it is of vital interest and in regard to a matter of greatest importance, that is, the bleaching of flour. The other side is organized and the time has come when this Association must admit that the bleaching of flour is all right or else this Association should condemn it at this time. We must take some decisive action. We should have a committee to consider our position in regard to this important matter, and, if we are to be against the bleaching of flour, then what should be done.

MR. WHEATON: I move you that a committee of five be appointed on this committee, and that the chairman shall be our present acting chairman of this Convention.

VICE-PRESIDENT LADD: I don't object to fighting; anybody who knows me knows that. But I want to say that I am in the thick of the fight now and my views are well known. I think it might be more effective if somebody else came out at the head of this committee, somebody from some other portion of the country. I will furnish a good deal of the material for the work.

DR. BRYAN: We don't want any resolutions brought before this Association by men who are not up on the subject. It is desirable that the man who has done much of the best work in the country on this subject should do that work. Dr. Ladd is that man.

MR. EMERY: I move the Acting Chairman of this Convention be the Chairman of the Committee on Bleached Flour, such committee to be composed of five men.

Motion was seconded and carried.

VICE-PRESIDENT LADD: I will appoint these committees later on with the exception of the Committee on Resolutions. I will appoint that committee now. The others I will appoint this afternoon or to-morrow after I have had some little time to consider.

COMMITTEE ON RESOLUTIONS.

HON. J. Q. EMERY, Wisconsin.
DR. M. A. SCOVELL, Kentucky.
DR. W. D. BIGELOW, U. S. Department of Agriculture.
HON. R. W. DUNLAP, Ohio.

If there is no other business the Convention stands adjourned until 2 P.M.

Wednesday, July 17th, 2 P.M.

VICE-PRESIDENT LADD: The Convention will come to order. We passed over the report of the Treasurer on Tuesday and the paper on "Food-Control Work in the South During the Past Year," by Hon. T. K. Bruner, Secretary, State Board of Agriculture, Raleigh, N. C. Mr. Bruner is present now and we would be glad to hear him.

REPORT OF TREASURER.

Raleigh, N. C., July 15, 1907.

GENTLEMEN OF THE ASSOCIATION: Your Treasurer begs leave to report as follows:

Amount on hand at last meeting..........	$115.00
Amount paid out since that time.........	50.00
Balance in Commercial and Farmers Bank.	$ 65.00

This amount is subject to the order of the Association or the Executive Committee.

Respectfully submitted,
T. K. BRUNER, Treasurer.

FOOD-CONTROL WORK IN THE SOUTH DURING THE PAST YEAR

By Hon. T. K. Bruner, Secretary State Board of Agriculture, Raleigh, N. C.

Mr. President, ladies and gentlemen: I greet you all once again in the best and heartiest of good fellowship. I cannot begin my subject without first extending this greeting, and I wish to add that these annual reunions of the food-control workers of America are, besides being useful in promoting harmony and uniformity in the enforcement of the food laws, potent factors in cementing good fellowship and friendship among the members. While the Association always gives the glad hand to the new comers, those who by reason of political or other changes come to us year by year to assume a place and become useful members of the Association, yet there is a feature about it which goes to my heart and fills it with regret: I refer to those who leave us by reason of political or other changes, who are not here this year, or, if here, are here as visitors. We invite them to seats, but that is not enough. I at least wish to hear their voices mingle in the debates, to have opinions from their ripe experience, and I am wondering if some provision may not be made, by amendment of the by-laws if necessary, which would make those members whose State or National terms expire by limitation still available as members of this Association. Perhaps all would not care to become members, but some of them would, and the Association might arrange to elect such as honorary members. Perhaps a committee appointed for this purpose could devise equitable ways and means for accomplishing this worthy end.

In approaching my subject, I find it bounded on the north by Mason and Dixon's line—a term much better understood fifty years ago than to-day—on the east by the blue waters of the Atlantic, on the south by those of the Gulf and Old Mexico, on the west by the Pacific Ocean. This is an empire within itself, and is fraught with possibilities, economic, commercial, and industrial, which mark it for a destiny wonderful to contemplate. But I must confine my few remarks to that phase of it relating to food control, and I therefore note with pleasure that while the territory of my subject is almost unbounded in its expanse, it has a limitation in time—"during the past year."

I am sure it will hardly be possible to remain strictly within this limitation, but I shall trespass as little as may be in telling most briefly of the conditions in the South. That region is just awaking to the necessity for food laws and their proper execution. The Southern people are indulgent and lenient in many matters, and have been so in regard to food laws and food legislation. Some, indeed most, of the Southern States have had food laws on the books for a number of years, but with singular indifference have provided no adequate means for enforcing them.

In this respect I am reminded of a situation at Richmond, Va. The Capitol Square there has a number of gray squirrels making their homes in the fine old trees. They are the pride of the city and the pleasure of the children resorting there, and much interest is manifested in keeping them unmolested. The gates and fencing had been removed, so that the dogs, having every means of access to the grounds, chased the squirrels to an amazing extent. Complaint was made to the authorities and the matter given careful consideration. In a few days signs were placed at all the old gateways reading: "Dogs not Allowed in this Square." That had the desired effect. The dogs would go to the gateways, see the sign, and trot around the square. Of course, no self-respecting dog of any breed would go where not wanted. (Laughter.)

So it has been in many of the Southern States, and, I regret to say, still is in some of them. They have draughted the laws and put them on the statute-books—put up the sign—and sent word around that it is now unlawful to adulterate, misbrand, color, or otherwise make deleterious any article of food or drink in the

State. The local self-respecting packers and conserve-makers obeyed the law, but the great majority of packers and purveyors living beyond the confines of the State knew not and heeded not, but continued to dump in deleterious viands which could not find market in the protected States. This is the simple and uncolored story of the food laws in the South for the past few years.

But another day has dawned in the South. The enormity of the crime committed against it and the fraud of it have become known, and we see to-day more determination to regulate, to control, and to force out that which is not wholesome, and to encourage that which is good and worthy.

VIRGINIA, within whose hospitable borders we are now assembled, I am glad to note, has taken an advanced step. Her recent Legislature enacted a food law and placed the authority for enforcing it with the Board of Agriculture and its officers, headed by Commissioner Koiner and Chemist McGruder. We may expect efficient and satisfactory results under their control. Heretofore authority and means to enforce the laws were inadequate.

SOUTH CAROLINA, I fear, is still feeding upon maximum doses of preservalin, benzoate of soda, and "tanking up" on coal-tar dyes. The State Board of Health, aided by the State Chemist, are in the saddle, but riding slow, because they have not the authority or the means for enforcing the laws given them by the Legislature. They are good men, able, and of profound learning, but helpless to do for the State that which all humanity cries aloud should be done. The lawmakers deserve censure for not protecting the people of the State, by providing the necessary means for enforcing the food laws.

GEORGIA was in much the same fix as South Carolina until quite recently. The Legislature in that State has not only passed good food laws, but placed their enforcement with the Commissioner of Agriculture and appropriated $10,000 for the purpose of executing the provisions of the Act. Georgia's law goes into effect August first of this year, and we welcome her to the field; she will find a plentiful harvest, and we look for a "hot time" in the Cracker State this fall.

ALABAMA. The significance of this name is, I am told, "Here we rest"—the execution of the food laws there is, then, "Alabama." (Laughter.) They are still behind in having no officer in charge of the execution of the food laws of the State, except that limited authority is given to the Commissioner of Agriculture, State and County Boards of Health. Just what this limited authority amounts to I am sure I cannot tell, but I am sure that those who use preservatives and color foods and drinks and do other unlawful things in connection with foods and drinks know full well how little it interferes with their infamous schemes. But the day cannot be far distant when this will be remedied.

LOUISIANA has also been behind in this matter, but recently the Legislature of that State has taken the "bull by the horns," by enacting compelling laws and by providing an ample appropriation for enforcing its provisions. In that State the execution of the law is placed in the hands of the State Board of Health, an exceedingly strong body of professional men, and we may expect a most vigorous campaign against fraud in all its forms in that State.

MISSISSIPPI has food laws. But they are a dead letter upon her statute-books, since no means are provided for their enforcement. It does seem that if there is a State in the Union which needs a food law it is this great cotton State. The effects of food on the human system and on human character are interesting topics, and have no place in my allotment; but from some things I read in the papers about "happenings" down there, from Governor Vardaman down the line, it seems charitable to suppose it is formalin, preserving-cakes, Rex Magnus, or something in the food which causes these things to happen. (Laughter.) Since most all the other Southern States are prohibiting these things and all else deleterious in the foods of their people, it behooves those States not yet in line to "get a move on them" pretty quick. All the old stuff forbidden in the protected States has got to find market somewhere; it is a limited area where they still may be sold, but they will be worked off on somebody; you may be sure of that, and Mississippi is in line to get her share.

ARKANSAS is but little better off. She has no officer charged with the enforcement of the food laws, but she has one noble, unselfish soul in the shape of a chemist, who analyzes the foods and drinks and gives warnings through bulletins. Limited in authority and handicapped for means, he still stands bared to the breeze, trying to steer the craft into safe harbor. May he succeed! The people of that State should rally to his support, and when they do awake to the importance of proper legislation on the subject, he should be placed in charge. The State will surely come soon into line.

FLORIDA—land of fruits and flowers! What charms in natural advantages are yours! But, like Mississippi, you take queer things in your food and drink. The law is there, and the Commissioner of Agriculture and his official family are charged with the execution of the same, but, alas, there is no enabling act, no money to force recognition. Let us hope that oranges, lemons, coconuts, and pineapples are great antidotes for hypersampshire, frostine, and preservaline. (Laughter.) It is time Florida should be redeemed; her people should see to it that it be no longer the dumping-ground for all forms of sophisticated foods.

KENTUCKY is one of the foremost States in the efficient enforcement of its food laws. With the peerless Scovell in the lead, nothing else should be expected. And Secretary Allen is a close second. With such men in charge, the Association needs no rehearsal of their performances.

TENNESSEE, I regret to say, is another Southern State suffering for "enabling power." They have the laws on the books; the State Medical Board is named authority for executing the same, but there the story ends—except in the homes of her people where one by one they are taken to the great "Beyond" by reason of the poison eaten in their daily food. It is sad to contemplate such a state of affairs. It is also comical to think what they eat. Tennessee must do better; her people are noble, and she should be brought quickly into the full enjoyment of a proper enforcement of good food laws.

TEXAS, the Lone-Star State, is in the same category as Tennessee, Mississippi, and Florida. There is a law, a Board of Health charged with its enforcement, but no "axle-grease"; and there has been no serious attempt to enforce the law. Really, brethren, I am afraid to let this *résumé* of the food conditions in the South get out—get into print, for it would be a directory to those packers who have adulterated, misbranded and colored foodstuffs, showing them where to unload. (Laughter.) But it would also give warning to those States, and in the end might, and I hope may, result in good.

In NORTH CAROLINA, the last of the Southern States about which I shall have anything to say, the outlook is more encouraging than at any time in the past. The last General Assembly redraughted and reënacted the old State Food Law and made it include drugs. It went a step further than the National law by expressly forbidding the use of chemical preservatives and coal-tar dyes. As it now stands, we have an excellent law and one which, when enforced, will give ample protection to our people.

The State Board of Agriculture is charged with the enforcement of its provisions and empowered to use its funds, or so much thereof as may be needed for the purpose. The spirit of the Board is frankly enthusiastic in favor of the most rigid execution of its provisions, and, the better to accomplish this purpose, at its last meeting it created the office of food chemist, and vested it with authority to prosecute in the courts and otherwise all infractions of the Food Law. The Commissioner of Agriculture placed in charge as Food Chemist Mr. W. M. Allen, who is, by education, training, and long experience, well equipped for the discharge of the new duties assigned him. So that we shall have a much more effective and vigorous administration of our food laws than heretofore. As you may know, in the past the State depended upon publicity and moral suasion—two pretty short sticks to lean upon—but, in all frankness, they did exercise a hindering or deterring power, and the conditions in the State were materially improved under that law.

During the year 1906 four hundred and sixty-six (466) samples of foods and beverages were analyzed, and only 24.68 per cent were found to be in any way sophisticated. In the report for 1900, the first year of the operation of our law, 56 per cent of the samples were found to be adulterated. The annual reports since show a regular decrease in the amount of fraud practised in the State, and as far as it went was encouraging. The recent action of the Board means that punishment will be meted out through the courts to future infractions of the law, and while, as you all doubtless remember the story in the blue-back speller, we have been throwing "grass" in our efforts to get the boy off the apple-tree, we shall now use "stones" and find out what virtue they possess for dislodging the thief.

Mr. Allen's first act was to issue a special bulletin giving notice that the use of all chemical preservatives and coal-tar dyes in foods and beverages offered for sale in North Carolina was forbidden by the new act, and that prosecutions would follow where found; and he supplemented this notice by attaching a list of thirty-one (31) of the prepared preservatives depending upon one or more chemicals for preserving power, and gave special warning in regard to their use in the State. This knocks out pretty effectively a lot of drummers who have been selling "perfectly harmless" ice-savers to butchers and fishmongers in the State, to say nothing of sausage-grinders. These men, who used these "ice-savers" with a good scoop in a generous hand, had no idea of the chemical composition of the material or of its baneful effect on human anatomy, but took the sophisticated word of the drummer, and put it on thick to save ice.

This is one of the most important parts of the food-control work in the South, where because of the long warm season it is more expensive to preserve foods. In this way, some of our Southern friends get unusually large doses of preservaline, freezin, icein, preservite, konserver, refrigerin, and the like. What they get in the States where there is no practical food-control work must be a caution.

But, altogether, I am glad to report general progress in the South along food-control lines, and most confidently predict that in a few short years that whole region will be policed as carefully as any other part of the Union, as all these States will have joined in the great work engaging the membership of this Association. They are good fighters once aroused, and when they line up for the fight and against fraud in every department of food work, you may expect to find vigilant and faithful performance of the duties entrusted to them. Let us do all we may to encourage the coming of the glad day.

I thank you.

VICE-PRESIDENT LADD: The next topic is a paper by Prof. H. E. Barnard, Chemist and State Food and Drug Commissioner, Indianapolis, Ind., on "Conditions in the Drug Trade Affecting U. S. P. Requirements."

CONDITIONS IN THE DRUG TRADE AFFECTING U. S. P. REQUIREMENTS

By Prof. H. E. Barnard, State Food and Drug Commissioner, and Chemist to the State Board of Health, Indianapolis, Ind.

The natural tendency to limit one's operation to the field best understood, though usually fortunate and commendable, has in the case of the enforcement of food and drug laws eliminated the drug part of the acts and magnified the food department. About all that has been known about drugs from the standpoint of food commissioners and chemists is that they are pernicious things when put in milk or potted ham, and serve as convenient hooks whereon to hang many a tale of poison and destruction. That there has been an ample field for work with foods alone cannot be gainsaid, nor do we deplore the activity in that direction. The importance of pure drugs should be better understood, however, and drug control should be co-ordinate with the study of foods.

Food adulteration is an economic question that concerns the wealth of citizens. Drug adulteration is far more than this in that it concerns the public health. Food is given us to create energy and sustain life, drugs are prescribed to remedy abnormal conditions and to cure disease. If it is important, then, that the food we eat be pure, it is of even greater importance that the medicine given us be of full strength and unadulterated. Food and drug laws, with each subdivision of title equally emphasized, are being enacted all over the country. The wisdom of legislators points out to us the neglects of past work, and calls for as decisive action with the adulterators of drugs as has been meted out to the manufacturers and purveyors of impure food.

We have been studying the composition of drugs in Indiana since the Laboratory of Hygiene was established, and the results of a year's work show how important it is that the quality of the drugs dispensed to the invalid be regulated. The grocer is, for the most part, simply the middleman who buys goods from the manufacturer or wholesaler, and turns them over to the consumer. The druggist, on the other hand, is himself largely a manufacturer, he prepares the articles he dispenses, and, in order that these preparations be properly made, the States have seen fit to legislate that only men of suitable training be allowed to sell drugs. Yet in spite of this very desirable provision, the products of the drug stores are very frequently below strength or of inferior grade. That this is due to a desire on the part of the druggist to defraud the consumer we shall not contend. We believe it is, for the most part, careless preparation that accounts for the inferiority of drugs and medicines. No other reasons can be given for the fact that lime waters frequently contain no lime whatever, and are as neutral as the water from the city tap. It is not to be presumed that any druggist who can manufacture lime water at an almost negligible cost will so debase himself as to sell a mother, who wishes medicine for a sick infant, an article which is no more valuable in correcting acidity than the water which falls from the clouds. The tinctures of iron, of iodine, of opium, of laudanum, of ginger, of capsicum, are all very commonly below standard strength. A physician prescribing a tincture must of necessity suppose it to be of certain definite strength, else it would be impossible to write an intelligent prescription; if, then, the druggist fails to dispense an article of standard quality, the patient does not get what the physician intends he should, and results are not forthcoming. The dose then is perhaps doubled or tripled until results are obtained. When the bottle is empty it may be taken to be refilled, and if this time a full-strength article is supplied, what then happens if the patient, who has been taking tincture of opium or laudanum in three times the normal dosage, takes the same quantity of the full-strength article? He is seriously, perhaps fatally, poisoned.

Several hundred years ago physicians and legislators saw the necessity for regulating the strength of drugs, and in 1613 the College of Physicians of England, by authority of law, was authorized to control drug manufacture and trade. This body compiled the first British Pharmacopœia, and published it in 1613. Subsequent editions bear the dates 1621, 1632, 1650, etc. As might be expected, the early editions contained lists of very absurd and superstitious remedies and made no pretentions to be of a scientific character. In the seventeenth century a committee of doctors originated the Pharmacopœia on the Continent. The history of the American Pharmacopœia dates back to 1817, when Dr. Lyman Spaulding, of New York City, submitted to the Medical Society of the County of New York a project for the formation of a National Pharmacopœia. After much preliminary work, the first U. S. P. was published in Boston in 1820. Since that time the Pharmacopœia has been revised every ten years, the present official Pharmacopœia being known as the Eighth Decennial Revision. It thus appears that in England, and in Germany as well, for several hundred years all chemists who have desired to study drugs and their composition have had a standard to follow, and in this country for more than eighty years drugs have had an official rating, and as they were pure or impure, standard or below strength, have been said to be U. S. P. or not U. S. P.

Food products have not been so rated, and until within the last few years, when this Association and the Society of Official Agricultural Chemists took up the subject, no food standards were obtainable. Drug-control work has developed the fact, however, that the Pharmacopœia has been used as an ornament for druggists' shelves and a club with which to pound negligent students in pharmacy, rather than as a manual for ready reference. The everyday druggist has, either because of carelessness or lack of ability, fallen far below pharmacopœial requirements in the manufacture of his preparations. This broad statement demands more than an assertion from me to prove its truth. A few months ago, since the examination of a large number of drug samples in my laboratory showed that 62.5 per cent of the samples were below the U. S. P. requirements, in order to determine, if possible, why the drugs were so heavily adulterated, we sent out to 207 dealers warning notices describing the character of goods purchased from their stock that were found to be illegal, and asking them to explain these results. An examination of the replies received reveals some very interesting conditions. Twenty-three retailers gave an explanation for the composition of their lime-water; 17 acknowledged carelessness in manufacture or storage, and 5 stated that they employed lime-water tablets; 38 dealers, whose tr. of iodine was found to be below standard stated they attributed that fact to improper storage or to careless manufacture, improper solution, etc. Fourteen dealers used old formulas which did not call for the addition of potassium iodid. In 1 case the clerk's error was evidently responsible for the results. Fifty-nine druggists explained the fact that their tr. of iron was below standard to the purchase of the solution of chlorid of iron from the wholesaler. Ten admitted careless manufacture, or storage, and 6 the use of an old formula. It is impossible to draw any conclusion from the analyses as to the quality of this solution of chlorid of iron handled by the wholesaler. Their formula calls for dilution, and, if the retailer follows directions, goods so diluted should be up to the standard. Sixteen retailers explained the illegal sale of black antimony by saying that they bought the goods from the wholesaler and supposed them to be pure. One retailer stated that he paid twelve cents a pound for the preparation, which upon analysis proved to be coal dust; this is at the rate of $144 a ton, a rather expensive price for slack coal. Forty-five dealers, reporting as to the quality of their precipitated sulphur, in every case stated that they purchased pure goods from the wholesaler. It is apparent that the trade in black antimony and in precipitated sulphur is entirely demoralized. There is no reason why either of these articles should be furnished a retailer in other than a pure state. The fact that the preparations are used in veterinary practice or in ointments has no bearing on the case at issue. Carelessness in manufacture and the storage of preparations such as lime water, tr. of iodine, and tr. of iron in loose-stoppered bottles seem to be the most reasonable explanation for failure on the part of the retailer to comply with the law. The use of old formulas and Pharmacopœias of the edition abandoned twenty years ago also explains many results that seem impossible to the druggist who uses every care in compounding his preparations. In only one instance does the retailer lay the quality of his goods to the clerk's error, and in no case did the dealer admit wilful illegal sale. The conclusions to be drawn from this brief summary of facts are that the retail drug trade should observe more care in the preparation of its goods, discard old formulas, buy Pharmacopœias of the latest edition, and insist upon guarantees of purity from the wholesaler with whom they deal. The purchaser of drugs, whether he be physician or layman, can take cognizance of none of these facts. He expects to obtain pure and standard goods, and it must be the duty of the retailer to dispense to him what he requires. The U. S. P. is now an integral part of the food and drug laws. It is a standard to which druggists must attain if they escape the wrath sure to be imposed upon wrong-doers by vigilant food control. Unfortunately the Pharmacopœia is not a perfect book; yet possibly it is as nearly so as can be expected in view of the circumstances under which it was created. The framers of the Pharmacopœia never dreamed that it would be in the lime-light as it now is. With commendable zeal they have gone over the book carefully and made a great number of changes and corrections. To the Eighth Revision were published May 1st of this year, in a circular supplement, 483 changes and corrections. There may be others yet to follow. While possibly the best Pharmacopœia in the world, there is room for many improvements and changes for the better, which will no doubt be made, and it is evident that the next revision will be the most thorough in its history. At the present time there are many preparations on the market similar in name to preparations given in the Pharmacopœia, but which are of different composition and made under a different formula. Many formulas have been in use for years by manufacturers, but no specific name of the compound appeared in the Pharmacopœia. Shall the drug chemist in his work of regulating the character of medicinal preparations take cognizance of proprietary preparations of decided value, even though they are not mentioned in a Pharmacopœia? For instance, the Pharmacopœia lists the title "Compound sirup of hypophosphates." This title has been in very general use by manufacturing houses, but prior to 1904 the formula now given in the U. S. P. under this name was not among the formulas offered by a large number of firms making this article. The food laws now being enacted, if strictly interpreted, make the title "Compound sirup of hypophosphates" applicable to the formula in the U. S. P. only.

Shall we recognize the U. S. P. preparation and prohibit manufacturing houses who have used the name for years from continuing to list their preparations under that title? Another instance has recently come to my attention which may be worthy of consideration. The last U. S. P. revision adopted the title "Solution sodium phosphate compound." A preparation of almost identically the U. S. P. formula had been marketed for some time as "Solution sodium phosphate concentrated," by 5 houses, "Solution sodium phosphate" by 3 houses, "Solution sodium phosphate saturated" by 1 house, and "Solution sodium phosphate compound" by 1 house. One firm used the title "Solution sodium phosphate concentrated" for the preparation called "Solution sodium phosphate compound" by the U. S. P., and the title "Solution sodium phosphate compound" for a somewhat similar preparation containing considerable iron. Shall the food chemists compel these manufacturers to revise their formula to conform to the U. S. P. requirements, or change the name of the preparations? These examples might be multiplied greatly, for there are many instances where elixirs, fluid extracts, essences, etc., have attained a decided value under their manufactured formula, although they are not at the present time in conformity with the U. S. P. preparation. It is true that the Federal law and many of the State laws recognize the Pharmacopœia as a standard only so far as it applies to certain preparations, and do not take into consideration formulas such as those just referred to. But some of the recently enacted State laws give the manufacturer no leeway. This secures absolute uniformity of formulas, which is indeed a most valuable provision, although it unfortunately places a heavy handicap upon originality which must discourage invention and establish conservatism at the expense of progress. Since we are, in a way, bound to take cognizance of drug standards in the future as we have of the food standards in the past, it seems to me to be well that we commence the study of drugs more carefully than we have done heretofore, that we may be able, perhaps, to help manufacturers and the makers of Pharmacopœias, and fit ourselves to settle the questions and technicalities which are continually arising.

Vice-President Ladd: Is there any discussion on this paper? If not, we will proceed to the next, which is a paper by Dr. J. H. Beal, Chief Drug Inspector, Ohio Dairy and Food Department, Scio, O., entitled "A *Résumé* of State Drug Legislation, Its Efficiency and Faults."

SOME DEFECTS OF STATE DRUG LEGISLATION

By Dr. James H. Beal, Chief Drug Inspector of Ohio.

The topic originally assigned to the writer was "A *Résumé* of State Drug Legislation, Its Efficiency and Faults." When the work of compilation was begun, it was discovered that the numerous amendments of the State drug laws during the recently closed legislative season had rendered the available data of little value, except in a historical sense. The task of collecting a series of the new enactments was immediately begun, but is not yet completed, owing to limited time available and the delay of some authorities appealed to for information. The first part of the topic is, therefore, reserved for further investigation, and the present paper is devoted to a brief consideration of some of the more common defects of State legislation, both old and new, respecting the adulteration and misbranding of drugs.

ADMINISTRATIVE DEFECTS.

The enforcement of State laws against the adulteration of drugs is either by the department of state charged with the enforcement of the general adulteration laws, by whatever name called, or by State boards of pharmacy. When their enforcement is left to the former authorities, the problems are those common to all the law enforcement by those departments, and need not be especially considered.

When their enforcement is left to State boards of pharmacy, however, special difficulties are introduced, owing to the peculiar nature of these bodies.

The State boards of pharmacy, or commissioners of pharmacy, usually consist of three to ten members, appointed by the Governor from a list of names submitted by the State Pharmaceutical

Association. As a rule, they are men of character and ability. Their principal functions are the examination of candidates for registration under the State Pharmacy Act, and the detection and prosecution of those who practise pharmacy without first obtaining a license therefor. Frequently also the boards are charged with the enforcement of the laws relating to the labelling and sale of poisons.

The revenues of the board are derived from the fees charged for the examination of candidates for registration, the issue and renewal of licenses, and fines collected from persons convicted of violations.

The last, however, is to be regarded as a liability, rather than an asset, as the penalties prescribed are so small that the expenses of prosecution are commonly greater than the fines collected.

As a rule, the secretary, who is usually the chief executive officer of the board, is the only member who receives a stated salary; the others usually receive a *per diem* allowance of $5 for time actually spent in the work on the board, and their necessary expenses.

From the above recital it will be readily understood that the financial resources of the boards of pharmacy would be, in a majority of cases, quite inadequate to any extensive proceedings involving the purchase and examination of samples and the prosecution of offenders. In some States the revenues barely cover the cost of holding examinations, and instances are known where the members have not only failed to receive their *per diem* allowance, but have even been compelled to bear a portion of their ordinary travelling expenses while attending meetings of the board, an extent of sacrifice not often found in, or expected from, public officials.

Another impediment to prompt and efficient executive action is the fact that the authority for the investigation and prosecution of offences is divided among a number of individuals scattered over the State, instead of being concentrated in the hands of one man located at the State capital.

As might be supposed, the lack of sufficient revenues and the want of proper machinery for the investigation and prosecution of abuses render any efficient enforcement of the adulteration laws by the boards of pharmacy a practical impossibility.

That drug adulteration is not more common in States where this is the only method of law enforcement provided must be regarded as distinctly favorable to the character of the men engaged in the drug business, and, although samples of inferior articles may be found with comparative frequency in such States, they are mainly traceable to a few sources of supply.

For this condition two possible remedies suggest themselves:

1st. To grant the Board of Pharmacy sufficient appropriations from the State Treasury to enable it efficiently to perform the work of inspection, analysis, and prosecution, and also to make some particular member of the Board specially chargeable with these duties, or in effect to make him a special drug commissioner.

2d. The other method would be to transfer the duties of enforcing the drug laws to the State official already charged with the work of enforcing the general adulteration laws, and thus utilize the resources and machinery which these authorities already possess.

Opposition to any change which would render the drug laws more efficient may be expected from two sources:

From those manufacturers and dealers who find it profitable habitually to ignore the law. This opposition, I am persuaded, would be comparatively insignificant, both in amount and effect.

The other, and more formidable opposition, would arise from the natural conservatism of the druggist. As a rule, druggists are more opposed to change than almost any other class of men. Many of these would oppose the amendments above suggested, not because they desire to sell adulterated drugs, but simply from their repugnance to changes in general, and the fear that in some remote way the law might be made the instrument of oppression and persecution.

SUBSTANTIVE DEFECTS.

The State drug laws also have substantive defects, as well as those which are merely administrative.

A material weakness found in many, if not in most of the new State laws which have been modelled on the Federal Act of June

30, 1906, is the provision which permits products to vary from the Pharmacopœial and National Formulary Standards, provided the "standard of strength, quality, or purity is plainly stated on the label."

The defect in this provision is that it presupposes the possession of technical knowledge on the part of the purchaser, which the latter, as a fact, does not have. The label may plainly state that it is made with 50 per cent alcohol, but this conveys no valuable information to the purchaser who does not know that to be of standard quality it should have been made with alcohol of full official strength.

The provision should be modified so as to require the package to bear a plain statement, in nontechnical language, that the article is below the standard generally recognized as proper for the article indicated by the principal title on the label. As the provision now stands, it permits almost unlimited evasion, and an examination of the markets will show that manufacturers and jobbers are freely availing themselves of the opportunity to dispose of defective goods. These are sold to the public by grocers and general dealers, and in a few cases are used in the compounding of prescriptions.

THE GUARANTY CLAUSE.

Another common defect in recent legislation is a failure to guard against abuse of the guaranty clause. It is eminently proper to permit the innocent retailer to protect himself by exacting a guaranty from the manufacturer or jobber, but when the product has been examined by the State officials and the fact of its deficiency has been certified to the retailer, the latter can no longer be considered an innocent party if he continues to sell the article. His guaranty should protect him only so far as he acts in good faith.

If the guaranty is to continue in effectiveness until all of the goods are sold, then the State laws can be practically nullified by a guaranty given by a person outside of the State. Possibly the courts may hold that the guaranty is efficient only so long as the retailer is unacquainted with the fact of adulteration, but it must be remembered that the general rules of interpretation require criminal statutes to be construed strictly, which means that convictions can be had only for violating the letter of the law.

LABELLING OFFICIAL PREPARATIONS WITH NAMES AND QUANTITIES OR PROPORTIONS OF CERTAIN CONSTITUENTS.

One or two, perhaps more, of the new State laws which follow the Federal Act in specifying that an article shall be misbranded if it does not bear a statement of the quantity or proportion of alcohol, morphine, cocaine, etc., which it contains, fail to except from this requirement preparations recognized by the U. S. P. and National Formulary and physicians' prescriptions. This failure must be regarded as a serious defect for four reasons:

1st. It is physically impossible for the ordinary pharmacist to carry out the requirement in all cases.

2d. The U. S. P. and National Formulary are now a part of the law, and there is no secrecy about their formulas.

3d. The names of these preparations sufficiently indicate their composition.

4th. The physician should not be compelled to divulge the contents of his prescription when he believes it to be for the benefit of the patient that the latter should not be so informed.

DISCUSSION.

Dr. Crumbine, of Kansas: I was particularly impressed with what the speaker has just said concerning the guaranty protecting the dealer after he knows that the article being exposed for sale is adulterated or misbranded. I think that then is the time the guaranty should cease. Our State has been impressed with that fact and has a regulation governing the point in question. It provides that when an article has been examined and found to be adulterated or misbranded, that fact is published and the guaranty ceases and the retailer is held responsible. I think it is a very wise provision. As the gentleman says, the whole law may be set at naught if this guaranty is a perpetual thing.

Dr. Beal: I would like to inquire whether that is a regulation of the Department or is found in your law.

DR. CRUMBINE: A portion of the law.

DR. BEAL: The point I wanted to make is that it is very dangerous to rely upon regulations made by the Department, and it seems to me it might be even in the case of your State where you have plenary powers given you in that way. I fear such a regulation would not stand in the courts without any support in the law itself. The courts would say that was merely a Departmental regulation, and not the law they are there to enforce. "You are given the authority to make rules and regulations not to change this law, but simply to determine how this law should be carried out," is what they would say.

DR. FISCHER: Last winter certain interests tried to get a drug law through the Wisconsin legislature based upon the National Food and Drugs Act. Mr. Emery and I argued against it. We suggested having the bill killed. There are great dangers in passing State drug laws based upon the National law.

VICE-PRESIDENT LADD: We will now have the next topic on the programme, which is a paper on the subject of "Diabetic Foods," by Dr. A. L. Winton, Chief of the Chicago Food and Drug Laboratory of the U. S. Bureau of Chemistry, Manhattan Building, Chicago, Ill.

DIABETIC FOODS

By Dr. A. L. Winton, Chief of the Chicago Food and Drug Laboratory,
U. S. Department of Agriculture, Bureau of Chemistry.

According to statistics gathered by Futcher and published in Osler's "Modern Medicine," 1907, Vol. I, p. 748, there were 4,672 deaths from diabetes in the United States during the census year 1900, of which 2,650 were in males and 2,022 in females. Accurate statistics as to the total number in the country suffering with the disease are not available, but from the number of deaths it is evident that they are in the tens of thousands—probably 50,000 is not an underestimate.

When it is considered that diabetes is a disease that can be held in check only by proper diet, and that indiscretion in diet is liable to lead to fatal results, it is obvious that food-inspection officials as well as physicians, should guard carefully the interests of diabetics, by spreading information with regard to their food requirements and exposing frauds of certain manufacturers of so-called diabetic foods. Most of the common adulterants of foods affect only the palatability and money value of the products to which they are added, and many of those which have been shown to be injurious to health (such as, for example, chemical preservatives) are slow in their action and do not directly imperil human life. Some of the diabetic foods now on the market, however, are immediately harmful; they should be classed as dangerous and should properly be labelled: "Poisonous for Diabetics."

A word with regard to the food elements and foods which are suitable for diabetics and those which must be avoided. Since it is sugars and other carbohydrates converted into sugars by the digestive ferments that aggravate the disease, it is obvious that foods containing considerable amounts of sugar (cane-sugar, invert-sugar, dextrose, maltose, etc.), dextrin, starch, and glycogen must be carefully excluded from the diet. Most kinds of meat and fish are permissible; liver and sweet shell fish, such as scallops, are, however, to be avoided. Milk, because of the sugar, should be avoided, but rich cream may be used sparingly. Butter and the various fats and oils are valuable substitutes for starch as heat-producers. Cheese is one of the best nitrogenous foods for diabetics. Of the permissible vegetables may be mentioned spinach, cabbage, cauliflower, onions, asparagus, lettuce, and tomatoes; of course, white and sweet potatoes, common beans, peas, lentils, green corn, beets, and other sweet or starchy vegetables must be avoided. Of the fruits only those containing the minimum percentage of sugar, such as, for example, sour oranges, should ever be eaten. Nonstarchy nuts, such as walnuts, almonds, hazelnuts, and Brazil nuts are valuable additions to the diet; chestnuts, being rich in starch, should not be eaten at all, and peanuts only sparingly. Tea and coffee can be used without sugar and milk, but cocoa and chocolate, because of their starch content, should be used very sparingly, if at all. Sour wines and distilled liquors can be drunk in extreme moderation, but sweet wines, cordials, and most malt liquors must be excluded from the diet. One great class of foods must be carefully avoided, namely, the cereals, and all bread, cake, breakfast cereals, and other starchy or saccharine products made from them. It is needless to say that sugar, molasses, sirup, and honey, and all other saccharine products are concentrated poisons for the diabetic.

All of the articles enumerated and others not mentioned are readily obtained and identified, and the selection from them of a suitable variety for the diabetic depends on the discretion of the physician and the patient. The chief difficulty in arranging a proper bill of fare is to find substitutes for bread and similar oven products. It is bread that the diabetic longs for with a craving as intense as that of the drunkard for alcohol or the coffee-fiend for coffee, and it is to satisfy this craving that manufacturers have sought to prepare suitable diabetic flours and bread products. As the so-called temperance drinks and medicines which satisfy best the craving of the sufferer from alcoholism are those containing alcohol, and the coffee substitutes most agreeable to the coffee-fiend are those containing secreted coffee, so the bread preparations which the diabetic finds most acceptable to his palate and will use to his peril if backed by false statements of the manufacturers, are those containing forbidden starch in the largest amount. The diabetic is easily convinced that what he longs for "does not hurt him," and he is willing to pay an exorbitant price for the article that satisfies his appetite at the expense, perhaps, of his life. The manufacturer who misleads the diabetic as to his diet belongs in the same class with the compounder of medicines containing undeclared alcohol, morphine, cocaine, and similar narcotics, and should be speedily driven out of business.

Three of the most successful diabetic bread preparations from the medical (not the commercial) standpoint are true gluten flour, Soja-bean meal, casein flour and almond meal.

If wheat dough is kneaded in water the starch is gradually washed out and a rubber-like mass is obtained, consisting chiefly of moist gluten. This process, variously modified, is extensively employed in Europe and to some extent in this country, for the manufacture of wheat starch, the crude gluten being obtained as a by-product. Gluten flour is prepared by drying the moist mass and grinding. As the starch is largely removed, the nutritive and bread-making properties of the flour are greatly changed by this process of manufacture. Bread can be made from gluten flour only by a special recipe, and the product thus obtained is quite different from ordinary bread. It must be admitted that this so-called bread is not so acceptable to the palate as ordinary bread, but it is one of the best substitutes for the diabetic patient who soon learns to tolerate and even enjoy it. Properly made, gluten flour should contain over 90 per cent of protein and only 4–8 per cent of starch and other carbohydrates; it is, however, a common practice to leave in the product a larger proportion of starch or else to add to the concentrated gluten flour a certain amount of ordinary wheat flour, so that the resulting product is intermediate in its starch and protein content between ordinary flour and gluten flour. Such flour, although yielding a more acceptable bread than concentrated gluten flour and one which is less injurious than common bread, should, however, be used with extreme caution and then only in mild cases and with a physician's advice. It is only concentrated gluten flour that can be safely used for diabetic bread.

As for the so-called diabetic flour containing about the same amount of protein and starch as ordinary wheat flour I have only words of condemnation. The ill effect of such a product on a patient suffering from diabetes in a well-advanced stage can be abundantly demonstrated, both by an examination of the urine and by noting the general symptoms of the patient. Under no circumstances should such a product be sold with any claim whatever as to its suitability as a diabetic food.

The Soja bean in Japan is an important human food, but in this country it has attained prominence chiefly as a soiling crop. Ball, in Bulletin No. 98 of the Bureau of Plant Industry, U. S. Department of Agriculture, classifies the varieties according to the color of the seeds, into six groups; viz., black, brown, mottled, green, greenish yellow, and yellow-seeded. Seeds of these varieties when fully ripe contain but a very small percentage of starch, sugar, and dextrin, the amount of starch alone being usually too small for detection under the microscope. Flour or meal made from Soja bean is a Godsend to diabetics. Bread or muffins prepared from it furnish a palatable, nutritive, and apparently harmless addition to the diet which can be used to advantage when the patient tires of gluten bread.

Almond flour or meal, prepared from the residue obtained after expressing the oil from almond kernels is entirely free from starch and can be used for preparing diabetic bread, although this bread, owing to its pronounced flavor, is not so acceptable to the patient for a steady diet as gluten, Soja bean, or casein bread.

Casein flour, as regards composition, is the best-suited of all commercial flours for diabetics, since it contains in the dry matter over 95 per cent of protein and no carbohydrate matter whatever. Bread and biscuit prepared from it can be indulged in freely by those suffering from diabetes, without fear of introducing into the system any of the food elements liable to aggravate the disease. As regards palatability, some, perhaps, will find it less acceptable than gluten or Soja-bean bread.

Recipes for making bread from the four materials we have considered usually accompany the package containing the product. Manufacturers also put on the market biscuit made from these flours. Incidentally, permit me to remark that the making of bread and other culinary preparations for diabetics is a high art, involving a knowledge of general principles as well as culinary skill; if, in addition, the task is a labor of love the patient is indeed fortunate.

As to the labelling and marketing of diabetic preparations, the time is ripe for decisive action.

The welfare of those afflicted with the disease demands that only foods containing the least possible amount of carbohydrates should be labelled diabetic foods, or for the use of diabetics. Products containing considerable amounts of carbohydrates should never be sold as foods for diabetics or recommended for such purposes—except in mild cases and then only by a reputable physician. This should apply not merely to fraudulent products, containing about the same amount of starch as wheat flour, but also to special preparations with 25, 35, 50, or even 75 per cent of protein, containing in addition starch, sugar, and dextrin in amounts above a certain limit. This limit, in my opinion, should not exceed 10 per cent calculated to the water-free material, but further investigation may show this limit to be either too high or that a special limit should be placed for each product. Products, such as casein flour, which naturally contain no carbohydrates should not have any of these substances added even if the proposed limit is not exceeded.

As for gluten flour, I believe it should be true to name, *i.e.*, consist of true gluten flour with the smallest practicable amount of carbohydrates, not a product with more starch than gluten, or even with 15 or 20 per cent of starch. The limit of 10 per cent of total carbohydrates in the water-free material is not too high.

An analysis or, at least, the percentage of protein and carbohydrates should appear on every package of a diabetic preparation or gluten flour.

Wheat products containing more gluten than is present in wheat flour, but still not sufficient to warrant the designation "gluten flour," may properly be designated by coined names and the guaranteed composition given on the label. Certain manufacturers are now labelling their products in this manner and others would do well to follow their example.

Incidentally it may be well to state that it is preferable, for the sake of uniformity, to give the percentage of protein obtained by the conventional factor 6.25 rather than that obtained by special factors; such as 5.70 for wheat products, or 6.37 for casein.

The labelling of starchy products as diabetic foods is as irrational and culpable as would be the labelling of pie as a food for dyspeptics. While it is true that dyspeptics do sometimes eat pie and live to tell the story, and that over-hospitable housewives do beguile people with weak minds as well as weak stomachs, from the strait and narrow path of health by the artful deceit of "It won't hurt you," still pie is not, on the whole, an ideal food for those afflicted with indigestion. Flour with 25–50 per cent of protein, but with fully as much starch as protein, may be compared to the least harmful kinds of pie, such as apple or custard, but so called gluten flour with only 12–15 per cent of protein and about 70 per cent of carbohydrates is the deadly mince pie of diabetic preparations—and worse, because while the dyspeptic recognizes mince pie as his traditional enemy, the misled diabetic thinks that the starchy flour that is killing him is his true friend.

The food analyst should join hands with the physician to protect these sufferers.

Vice-President Ladd: Prof. J. O. LaBach, Chief Chemist, Division of State Food Inspection, Kentucky Agricultural Experiment Station, Lexington, Ky., who was to have read a paper on "Some Fallacies in Proprietary Foods," is not present; so we will pass on to the next topic, which is a paper on "Antiseptics in Tomato Catsup," by Prof. Floyd W. Robison, State Analyst, Lansing, Mich.

ANTISEPTICS IN TOMATO CATSUP

By Prof. Floyd W. Robison, State Analyst, Michigan.

The discussion of antiseptics in tomato catsup for all practical purposes may be limited to salicylic and benzoic acids and their sodium salts, and, indeed, lately may be confined almost exclusively to benzoic acid and its sodium salt. This is true at least so far as the Michigan market is concerned, and I see no reason why the Michigan market should differ in this respect from that of any other State.

Of all food products into which preservation enters, it is usually agreed by those favoring its use that there is the greatest excuse for its employment in tomato catsup. Certain it is that this product is the one first mentioned by the manufacturer in his endeavor to establish a firm foundation for the use of preservatives.

Whatever ingredients are permitted to enter into food products, it is generally conceded by scientists that an article, preservative, or other foreign substance should never be added except the food product is improved or made edible by such addition. In this connection I may be pardoned for quoting at length from an address given by Dr. V. C. Vaughan of the Michigan University, before the International Pure-Food Congress in St. Louis. "The experiments that have been made upon saccharin are contradictory, and until it has been abundantly proved that saccharin is not harmful, it certainly should not be used. Here is a substance which everybody admits is not a food, and as it is taken into the body and passes through the body unchanged, it does not furnish us with any energy at all; we are not able to do any more work with it than we are without it. It is a serious question with all things of this kind whether they can pass through the body without doing the body harm. The kidneys are doing some work, and they are doing the work of excreting a thing which has been of no service to the body whatever, and it is fair to presume in all of these cases that a substance that is of no good to the body and which the organs of absorption of the body must take in and which the other organs must cast out, is harmful to the body because it is throwing upon both sets of organs work which does not add one iota to the energy or strength of the body, and it is fair to presume at the very start that those things are harmful, and until saccharin is absolutely shown to be harmless it should not be administered or allowed in any food."

Acknowledging the above position to be a sane one, and I have quoted it simply because it is the position taken by the leading physiological chemists of the world and applies in the main with particular force to preservative agents, it then becomes the privilege of the people to demand that before a preservative shall be used in a food its harmlessness, to say the least, must be established beyond the shadow of a doubt. In plainer language, the burden of proof must rest upon the manufacturer, and not upon the people. It manifestly makes a great difference in protecting the interests of thè consumer whether the burden of proof rests upon the people or upon the manufacturer. The statute should read, not that foreign products in food products may be condemned if they are injurious, but that they shall not be allowed unless they are noninjurious. With the burden of proof resting upon the manufacturer where it properly belongs, the people are compelled to show, simply, that any article of food contains a substance foreign to it when pure, and on this finding alone it becomes condemned unless the manufacturers furnish proof beyond the rebuttal of the people that the article in question is noninjurious to the public health.

In the winter of 1905 and 1906 the Michigan Dairy and Food Department took up the study of the question of harmfulness of preservatives, and the subject has been under study since that date. The lack of a National Food Law at that time made such experimental work imperative, especially in view of the activity of certain interests to commit the State to some decisive stand favorable to the use of preservatives. This work, while undertaken from a different standpoint than the elaborate experiments of the U. S

Bureau of Chemistry, is furnishing data of untold value. The subject is being studied in the following manner:

1st. Is the preservative dissolved and absorbed by the body fluids? Animal experiments.

2d. If absorbed, has the preservative any detrimental effect on the body fluids?

A. Does the absorbed preservative have any retarding effect on the action of the digestive agents of the body?

B. Is the preservative in the strength wherein there is no appreciable retarding effect in reality a preservative?

C. What will be the effect of feeding to young animals for a long period of time in the food such a quantity of a preservative as has been shown is the least quantity that will act as a preservative and possibly, as A. above has shown, is the greatest quantity that has no retarding influence on digestion?

The above is the problem.

We have shown in a thorough experiment on dogs conducted through one winter that salicylic acid, benzoic acid, sodium benzoate, sodium sulfite, formaldehyde, borax, and boric acid are all dissolved by the body fluids and are eliminated easily in the urine as was expected. Salicylic acid and sodium benzoate exert retarding influence upon the digestive fluids clearly in the concentration of 1 to 1,000. Sodium benzoate short of a concentration of 1 to 200 is not a complete preservative, and in that concentration its retarding effect upon digestion is very marked indeed, and this brings me to the main point that I shall dwell upon in this paper, although not at great length.

The preservative that is to be employed in tomato catsup must be used in sufficient quantities to insure its acting as a perfect and complete preservative. It so happens that the problem greatest to the manufacturer in the preparation of tomato catsup is not the one most serious to the consumer. The former's object is to get the product upon the market in such a condition that its salability is not destroyed by fermentations, etc. For the consumer it is far better that the catsup should ferment and thus not be consumed by him than that an unwholesome, unclean product be taken into his system. It is true that, aside from the moulds that get into the product, the organisms that cause tomato catsup to ferment are the consumer's best indicators of the lack of proper sanitary precautions having been taken in the manufacture of the product. To render them inactive by the employment of a preservative in quantities below complete sterilization is to remove the warning signal which is the consumer's best guide.

The use of sodium benzoate in the strength of 1 to 1,000 does not render the catsup much less liable to transmit disease. It does, however, retard the souring and acts as the manufacturer's friend at the consumer's expense. If sodium benzoate is to be used as a preservative in tomato catsup it must be used in quantities greater than 1 to 500. In fact my experiments indicate that there is not complete inactivity of the organisms above 1 to 200, and even in this concentration the organisms are not destroyed. Probably a 1-per-cent concentration would be as low as could safely be relied upon in all cases, and the preservative, if used, should be employed in this strength. The real problem to be studied, then, is not what is the effect of .05-per-cent sodium benzoate or .1-per-cent sodium benzoate upon the human system, but what effect has .5 per cent or one per cent of the preservative.

This question is easily answered as to the influence of salicylic acid and sodium benzoate—the two catsup preservatives—on digestion (in vitro). One per cent salicylic acid and one per cent sodium benzoate, each completely inhibits gastric digestion and a corresponding retarding influence is noticeable as low as 1 in 2,000.

What is the effect on young animals or on human subjects of feeding preservatives mentioned in quantities that conform to the requirements mentioned above, I am not prepared, at this time, to state. From analogy I should expect to find quite decided results if continued for a period of some length. Certain it is that, based on my present knowledge, my vote would be assuredly unfavorable to the preservatives mentioned.

Another point which we are compelled to take cognizance of is the effect of the employment of the preservative (quantity not considered here) on the grade or quality of the tomato catsup itself. Who of us have not seen the tomato-catsup bottle on the lunch counter, which, if not liberally supplied with preservatives, could not have remained there ten hours? This is, of course, the dealers' and venders' problem in this instance, but the unnatural condition of the product makes possible filthy and unsanitary conditions all along the line, and here again it is the safety of the consumer, and not the expedient of the producer, that must be catered to.

From my experiments thus far, I must condemn salicylic acid and sodium benzoate in tomato catsup. The remedy is, complete sterilization, in what manner it is not my function to explain, nor would I be justified in spending time on that phase of the problem; but the consumer must be protected in these matters with firmness and certainty, but, gentlemen, not with malice. And our experience teaches us that when the manufacturer becomes convinced (and we mean to convince him) of the sincerity of our efforts and the entirely unprejudiced outline and prosecution of our experimental work with what I know will be a business-like, sane application thereof, the manufacturer, or producer, will not be the last to give it his sanction and support.

VICE-PRESIDENT LADD: If there are no remarks on this paper, we will pass to the next, which is "Restrictions of Artificial Color in the Preparation of Food Products, with Specific Recommendations," by Prof. Julius Hortvet, State Chemist, St. Paul, Minn.

RESTRICTIONS OF ARTIFICIAL COLOR IN THE PREPARATION OF FOOD PRODUCTS, WITH SPECIFIC RECOMMENDATIONS.

By Prof. Julius Hortvet, State Chemist, Minnesota.

The question of artificial coloring is one of the most important and difficult of the many that have arisen in connection with the attention given to the adulteration of foods. Associated with it in importance is the question regarding the use of preservatives, and also of equal importance comes the question of labelling. These three appear to me to cover practically all of the leading difficulties which confront food officials, manufacturers, and dealers. When we have found an answer, in part at least, for one of these questions, we also find a solution of some of the difficulties that underlie the others.

It is true that much of the coloring of foods is traditional and æsthetic. We of the human species have ever been mindful as to "how Nature paints her colors"; we have always been imitators. We have within us the inborn disposition to employ exterior embellishments primarily to please the eye. The food-manufacturer has from time immemorial realized the necessity of striving to adorn his product "with some fine color that may please the eye of fickle changelings." Thus candies, desserts, sauces, and certain so-called "soft drinks" are obviously colored to render them attractive in appearance. The confectioner seeks to give pleasing variety to his stock, the chef feels his obligation to satisfy the sight as well as the taste, and the soda-fountain attendant likewise does not fulfil his whole duty when he has simply allayed a thirst. These are all legitimate objects, and the disposition to attain them is at least one of the minor virtues of the race. The æsthetic sense has its place in the confectionery store, the grocery, and the kitchen. It should be encouraged, cultivated, and trained.

But there is another trait, inherent or developed in our species—the eagerness for pecuniary gain. We have been tempted by the material reward and have allowed our higher sense to fall a victim to shams and deceits. It has become only too sadly true that many of us have been prone even to "botch and bungle up damnation with patches, colors, and with forms." We have learned the art of manufacturing imitations, and we have discovered that color is one of the most useful of all deceptive devices. The use of colors as an aid to deception is found largely in the manufacture of substitutes. Colors have often been used to conceal inferiority or falsification, or, like the use of the dead bee in the jar of honey-flavored glucose, to give verisimilitude. Skimmed milk has been colored to give the appearance of richness; dilute alcohol, to imitate wine; and acetic acid, to imitate cider vinegar.

Thus, in general, there have arisen two motives underlying the use of coloring in foods. These are not clearly defined in the popular mind, and we often fail to discriminate between that which is legitimate and that which in its nature is intended to deceive. It is universally acknowledged that the natural colors of foods are among the truest representations of purity and quality. It does not follow, however, as a corollary, that in all cases an artificial color is *per se* a deception. It is true in large measure that with the aid of artificial coloring-matter "every article of food has in appearance been successfully imitated," but it is not true that in every article of food in which artificial coloring is used there is an intention to deceive or defraud. "Beneath the beautiful exterior of the soda fountain" may or may not "sit enthroned a host of frauds." Many of these products are colored without any intention to deceive as to quality or purity. There can be no criticism on the efforts of manufacturers to make their products pleasing to the eye, providing there be no possibility of deception. Even the use of harmless coloring to restore the appearance of a product of otherwise good quality is open to question, chiefly on the ground of concealing inferiority. There have been and there are to-day extremists on both sides of this controversy. There are those who say unqualifiedly: "The use of artificial coloring is in the very nature of the case an effort to deceive." On the other hand, there are many who view the matter in the light expressed in the following quotation taken from an editorial which appeared in one of our leading magazines over a year ago: "Some State laws go so far as to inflict fine and imprisonment for making an article appear better than it really is. If we must have legislation in regard to this, it would be wiser to reverse it and punish the man who did not make his food product as attractive as possible. Who will say that a table set with green pickles, red catsup, yellow butter, and with candies, ice cream, and jellies of all the colors of the rainbow is less wholesome than with more homely food?" Both sides of the dispute have at times been lacking in discrimination, even if they have not been lacking in toleration. On the one hand, there has been failure to recognize the common meanings of words, the purposes for which certain products are intended, and the fundamental facts of human nature; on the other hand, there have been overstatements, exaggerations and categorical assertions. It would be impossible, and it is doubtless unnecessary, to analyze all the popular arguments, pro and con, in detail. Many statements are too "far-fetched" even to deserve critical attention; they catch the eye, but they fail to convince the understanding. The food chemist, above all others, should carefully distinguish between the two chief purposes for which colors are used in foods. He should recognize, for example, that in the case of candies, many nonalcoholic and alcoholic liquors, dessert preparations, sauces, etc., the chief or only question involved is the wholesomeness of the color used, but that the addition of coloring to such products as fruit preserves, jellies, fruit juices, wines and whiskies, cider vinegars, and spices is essentially a deception and an injury to the buyer or user. The use of even a harmless color to restore the appearance of a natural product is a deception, as it disguises the quality of the materials used. The plea that it is necessary to resort to artificial coloring in order to maintain uniformity in appearance is also open to objection on the same grounds. A table set with green pickles (artificially colored), red catsup, and yellow butter is certainly a fraud, even in the case of the colored butter.

And why not except the butter? I think we all understand the situation as to yellow butter. You know that certain animals have protective colorings as well as other attributes given them by nature for the purpose of self-preservation. So it is with the artificially colored butter. Naturally butter has a color varying with the season of the year, from a pale-straw tint to a pronounced yellow. As a matter of tradition, also, we know that the housewife has colored her butter, using such harmless material as she obtained from carrots and other vegetable sources. This was mainly to satisfy her æsthetic sense, not for purposes of deception, although in many instances the deception was there. The words "yellow butter" became descriptive of the product. Then came oleomargarine, that erstwhile "filthy and unwholesome conglomeration" made to "drive out butter and ruin our agricultural communities." And there was, indeed, a real and imposing danger, for oleomargarine assumed the color of yellow butter.

Is the danger any less to-day than it was several years ago? Not at all; remove the added color from dairy butter, and only the chemist can positively distinguish between the two competing products. So to-day the situation is simply this, that butter must retain its color as a defensive measure, and to such device the agricultural communities and the butter-makers are amply entitled. I do not think most of us have a real preference for either yellow butter or yellow oleomargarine. We would probably prefer that both products contain no artificial coloring, but before we can complain that the butter-makers color their butter it will be necessary that the oleomargarine-manufacturers cease coloring or manipulating their product so as to resemble yellow butter.

Thus in a large proportion of the cases of coloring of foods the only question that needs to be considered is that relating to the wholesomeness of the color used. If an attempt were made to classify food colors from a sanitary standpoint, most of us would agree in classing certain colors as harmful and certain others as harmless; but there would remain a large number of colors which would be considered doubtful and concerning which opinions would differ widely. In the harmful class would be included colors containing arsenic, antimony, copper, lead, tin, and zinc, also such colors as picric acid, Martius' yellow, safranin, Victoria yellow, and

Bismarck brown. The harmless colors would include caramel, annatto, turmeric, litmus, licorice, cochineal, and the various vegetable juices. Regarding the coal-tar colors particularly, there would be widely differing opinions. On general grounds some experts would object to all of them, while others would prescribe the use of certain colors only. It cannot be denied that certain of these colors are in themselves actually poisonous, and it is also true that as a class all of them are more or less open to suspicion. The point has been raised that the amount of coloring-matter employed is never large in proportion to the whole product. It is a serious question, however, whether, as a matter of good policy, a color should be permitted at all in ever so small an amount when it is known to possess harmful properties. It is a poor defence of the use of coal-tar colors, as well as of other foreign substances which have been added to foods, to say that the word "poison" has a broad meaning; that toxicologists give lengthy definitions that are not wholly satisfactory; that age, physical condition, and individual idiosyncrasy enter largely into the problem; that there are few substances that might not be poisonous to some persons; and that there are many substances, commonly regarded as poisons, which, when properly used, are capable of acting beneficially. We know, of course, that certain substances, as salt and saltpetre, have caused death from the effects of large doses; that alcohol is classed as a poison; that, in short, the whole question is sometimes relative; but there can be no question to-day as to what is commonly meant by a "poisonous substance." We are not so much contending that certain articles commonly used in our foods may under certain circumstances act as poisons; we are simply defending ourselves against two possible evils: first, the addition to our foods of any substance that will tend to augment the possibilities of harm arising from our daily diet; second, the addition to our foods of substances having therapeutic or even toxic properties by persons unqualified to prescribe such substances.

As a continued movement toward better conditions, it is imperative that the use of coloring-matters should be kept under intelligent control. Regulation of the food industries will in future depend more than ever before on the results of scientific investigations, and the laboratory will become the dominant factor in the shaping of food standards and food laws. This prediction leads to the first recommendation which I have to make, viz.:

1st. All coloring substances or classes of colors that are open to suspicion, in whole or in part, should be prohibited until such time when such suspicion may be entirely. removed. In other words, any substances should not be permitted that have not been shown by competent authority on special investigation to be harmless.

Also I will recommend that:

2d. All coloring substances or preparations which are liable to contain harmful ingredients or which are known to be poisonous under certain conditions, or which tend to any extent to interfere with the normal bodily functions, should be prohibited in foods.

3d. There is a large class of food products, such as fruit jams, preserves, jellies, canned fruits and vegetables, and catsups, which have distinct natural colors of their own. The methods of manufacturing these products and preparing them for market should be developed more and more so as to retain to the greatest extent possible the natural colors. The addition of coloring-matter of any kind to these products, whether for the purpose of restoring natural colors or tints or for the purpose of securing uniformity of appearance, should be discouraged and prohibited.

4th. The addition of harmless coloring-matter to articles of food or drink that do not have characteristic distinctive colors of their own should be permitted in all cases where there can be no deception or fraud. The legitimate exercise of the æsthetic taste in these matters should not be restricted or discouraged.

Vice-President Ladd: Our next topic is "Color in Butter," by Prof. R. M. Washburn, State Dairy Commissioner, Columbia, Mo.

COLOR IN BUTTER

By Prof. R. M. Washburn, State Dairy and Food Commissioner for Missouri.

The sentiment against the use of artificial color in foods is growing and I shall welcome the day when such is prohibited. But so long as the use of any artificial color is permitted in any of our foods, butter should and will continue to be colored during that portion of the year when without color the butter would not look like butter. Not for the sake of deception is this done, but for the sake of uniformity. During spring and early summer, the natural season for the giving of milk—the season during which practically all of the butter a few years ago was made—during this season butter is naturally yellow. From time immemorial butter has been yellow. The people still demand yellow butter. When the cows were developed to give milk through the winter season, they became to that extent artificial creatures. During this portion of the year they produce a butter with an artificial (almost white) color. It is during this season that coloring is necessary that the butter may have a natural color.

Imitation butter, oleomargarine, is colored for the sole purpose of making it look like something which it is not. It is only when oleomargarine looks like butter that it can be sold to the unsuspecting consumer as butter, which is the case with about $25,000 worth every month in the city of St. Louis, Mo.

Butter is colored that it may look like butter all the year around. Likewise oleomargarine is colored that it may look like butter all the year around. One is honest and the other is dishonest. That the color used should be absolutely harmless goes without saying.

When all coloring-matter is prohibited from all foodstuffs the dairyman will cease coloring. They do not ask special favors, but they do demand that dishonest competition cease. Let us welcome the day when every article of food shall come to the consumer unmuddied by artificial coloring.

Vice-President Ladd: The next topic is the "Importance in Prohibiting the Use of Artificial Coloring where it is Used for the Purpose of Deception," by Prof. E. H. S. Bailey, Chemist to State Board of Health, Lawrence, Kan.

Professor Bailey: We may have slightly different views on this subject and, although we may all think alike on it, we might be able to present those views in a different way and so, perhaps, I may present this topic in a little different way from previous speakers. (Paper follows.)

THE IMPORTANCE OF PROHIBITING THE USE OF ARTIFICIAL COLORING WHERE IT IS USED FOR THE PURPOSE OF DECEPTION

By Prof. E. H. S. Bailey, Lawrence, Kan.

It is most logical in considering this subject to go back to the original use of coloring in food products. Whether the color is of vegetable, animal, or mineral origin, or whether it is a so-called synthetic color, is not of importance here, as long as it is added color. There could have originally been no other object in the use of color in foods than to restore that which had been lost by the process of preserving, curing, or pickling; or, in other words, to give the food the appearance of freshness. This was desirable to make food more salable.

On account of our peculiar susceptibility to suggestion, no one will deny that a bright color tends to make a food more palatable, if that color belongs to the original fresh product. Blue strawberries or pink peas would not be more palatable for the added color, but red strawberries and green peas appeal to the eye and the palate at the same time. The ordinary mortal prefers a red-strawberry soda water; he thinks it tastes better, and he is not influenced by the statements of those ultra-ordinary men known as chemists that the flavor as well as the color is artificial.

Assuming, then, that the original use of coloring was to restore that which had been lost, it was a very easy transition to the practice of using the color to make a food product look better than it really was, or, in other words, to deceive the purchaser.

The origin of the practice might have been with the best of motives, but the ultimate carrying out of the custom has led to untold frauds upon the public with the worst of motives—that is, with the object of making them think that they are getting something better than they really are.

Admitting then that in most cases the coloring is added with intent to deceive, but at the same time admitting that this array of color does appeal to the æsthetic sense, how far shall we allow the manufacturer to take advantage of this psychological fact, which we give him credit for discovering in the human race?

The education of the public to the point that they prefer food so gorgeously colored "that Solomon in all his glory was not arrayed like one of these" (raspberry jams) has gone on until even those "people who ought to know" do not take kindly to anæmic cherries, sage-green pickles, or water-white extract of lemon. Is it not after all about time for other leaders to take a hand in the education of the public, and to say something about "nature unadorned"?

We admit that it will take some time to undo the evil that has been done. For too long a time a good quality of pumpkin flavored with tomato and spices, preserved with sulfites, and colored with some fast red dye, has adorned the boarding-house table, under the artistic label, "Fine tomato catsup, prepared from specially selected fruit and flavored with fine spices of our own importation."

One of two positions must be taken by the Boards of the individual States, whatever the attitude of the Federal Government may be in the matter. It will be admitted that, much as we desire uniformity in food legislation, the individual States have a *right* to control matters within their own borders. Either the use of all coloring-matters must be prohibited, as is the case in some States, or animal, vegetable, and certain prescribed synthetic colors may be allowed, provided their presence is stated on the label.

If we do not take the most radical position, but prohibit the use of all added colors to food products when their use would tend to deceive the customer into thinking that he has a better or more nearly genuine product than he really has, it seems that the true object of the law is attained.

This position should be sustained because the use of coloring in foods allows the manufacturer to put up inferior food under the guise of standard foods; it allows deception as to the strength and purity of the product; in some cases the freshness or relative age of the food is disguised; and by the use of coloring an unwholesome food may be put upon the market as a wholesome product.

If this principle is applied in some concrete cases, the effect can be more readily appreciated. There is no excuse for the addition of coloring to jams, jellies, or preserves. If they are made of inferior stock, let them be sold at a reduced price. Canned fruit, if properly preserved, does not need coloring any more than it needs a preservative. Pickles of all kinds, peas, string beans, and foods of this class may be somewhat bleached in the legitimate process of preservation, but that goes with the process. Put the goods on the market just as they are, and the people will soon suspect the "green-goods man," and with reason.

Have not the manufacturers of the highest grades of goods stopped putting turmeric in mustard and synthetic color in lemon extract? If we can educate the color sense in regard to one shade, why not about another? Extracts that are supposed to have their own natural color, as that of lemon and vanilla, may then carry that and nothing else, while the synthetic extracts which cannot be made from fruits, such as banana and strawberry, might be allowed to contain some artificial coloring, if the fact is stated on the label.

It is probable that the vinegar men will hardly accede to these propositions, but really why not? Let cider and other genuine fruit vinegars that are not so abundant or cheap retain their natural colors, and others that cost less to produce may be water-white, if that is their natural appearance.

With due respect to the Federal laws which allow the addition of artificial color to dairy products, again the question is, Why? What is the object of their addition? All of which it is useless to discuss here.

The contention in regard to confectionery is probably a sound one, that "coloring-matter is not added with intent to deceive," but to make the product more pleasing to the eye. Let the principle be applied here also, even if it does rule out of the market some of the cheap chocolates.

The author is aware that some of the applications of the principle for which he has been contending will seem rather radical, but if by carrying out this principle it becomes easier to sift the good from the bad, and if it will keep out of the market a lot of material that is of questionable food value anyway, is it not a fair position to maintain?

VICE-PRESIDENT LADD: We have now completed the three papers on color and the subject is open for discussion.

DISCUSSION.

DR. GUDEMAN: I would like to make a few remarks and take the liberty of making them in the name of the National Confectioners' Association. This subject of color is of great interest to this Association, and I have been much interested in listening to these last few papers. Professor Hortvet's paper I want to speak of especially. It was a very able and interesting one. I assure you that if your Association adopts the suggestions contained in that paper the National Confectioners' Association will have absolutely no objection to any of them.

He brought out three points. As respects the pecuniary gain in using colors. And let me say right here that my remarks refer exclusively to confectionery. There is *no* pecuniary gain to be had in coloring confectionery. They all do it; therefore, there is no advantage to one firm over any other firm. The second point Professor Hortvet brought out is the concealment of inferiority by the use of colors. Now, in confectionery colors are not used to conceal inferiority or to commit fraud. So on that point also the National Confectioners' Association absolutely agrees with you. The other point he brought out is the wholesomeness of the colors used. On that also we agree with you. I do not know whether it will be your policy to decide this matter right here and adopt these recommendations or not, but the National Confectioners' Association hopes that you will adopt these recommendations made by Professor Hortvet. They would have no objection to any of them. These are the things we have argued for during the last twenty-four years. As to the matter of aniline colors, for years I have been asking for aniline colors to be allowed and to make the number up to 12 or 14 which we believe to be harmless. By a recent decision issued by the Department of Agriculture seven of those colors we have been arguing for have been declared to be absolutely harmless, and we are in hopes that that number may be increased. I do not believe there should be anything said by this Association which would prohibit the use of those aniline colors which are recognized as perfectly harmless.

Mr. T. E. Lannen, of Chicago: I should like to say a word in behalf of the National Association of Manufacturers of Soda-Water Flavors. I would like to ask Professor Bailey if it is not a fact that in his State (Kansas) there is a ruling which requires that the presence of artificial coloring-matter in all articles of food must be stated on the label?

Professor Bailey: Yes.

Mr. Lannen: Does that include confectionery?

Professor Bailey: It does not include confectionery.

Mr. Lannen: Then, as I understand it, the presence of artificial coloring-matter in confectionery in Kansas does not have to be made known on the label. But the presence of artificial coloring in soda-water drinks must be made known on the label. I have never yet been able to see how the presence of artificial coloring in soda-water drinks works any injury to the consumer, for the reason that they are not sold for their nutritive value or inherent strength, but are sold entirely for a pleasurable purpose to the consumer. If they are properly flavored and they suit the taste of the consumer, then they accomplish the purpose for which they are put on the market, and I cannot see how they work any injury to the purchaser of these goods. They are getting what they want and what they expect. The whole object in supplying the consumer with soda water is to please, and when that is accomplished I can't see where any fraud is worked upon anybody. Now take strawberry soda, or pop; this might apply particularly to that because a man is not looking for the actual substance of the strawberry, but if he gets the flavor and the appearance, the color of the real berry, he is satisfied. It is all he expects, and we give him that. And that is the case with all soda-water flavors. There is not a single one of them but would be white in color if they were not artificially colored. They would be absolutely white were it not for the presence of added artificial color. The color would come from the extract if it came from anywhere; and take lemon, for instance, what color would there be from the pure extract of lemon? There would be only the small tinge of coloring that would come from the lemon peel. That amount would not affect the sirup at all. It would still remain white. Take vanilla. Put the extract into the soda water, and the same result would come as in the case of lemon. Everything that is sold to-day for soda-water flavors would be practically white. The same rule would apply to root-beer and sarsaparilla and things of that kind. But these things are sold for a pleasurable purpose and not for their value as food, and you want to put the ban on this great industry by requiring us to state on the label that the products are artificially colored, when the man who buys them is getting exactly what he wants and we are not using a harmful color.

Professor Hortvet read an able paper, and I agree with him that where a color is harmful it should not be used. Or where a color is used to deceive, I don't think it should be allowed either. I have taken the stand that it should not be used in such a case even when it is declared on the label. According to the strictest interpretation, a color should not be used when it deceives and conceals damage or inferiority, even when it is stated on the label.

I can only add my approval here to that given by Dr. Gudeman in behalf of the Confectioners' Association to what has been said by Professor Hortvet, and I hope your Association will act along the lines suggested by Professor Hortvet. Kansas has gone further than that. They require the presence of coloring-matter to be stated on the label, and that works a hardship particularly to the soda-water manufacturers who have to put their label on each bottle and on the case. And it is a great expense and a great deal of extra labor.

Mr. Emery: Is that your only objection to it?

Mr. Lannen: If it accomplishes no purpose at all, what is the use of putting it on there?

Mr. Emery: I just want to know what is the attitude of your Association.

Mr. Lannen: Its attitude is that, if colors are not used to conceal damage or inferiority, and as the sirups please the consumer as they are, then the placing of this little label on each bottle is a needless thing.

Mr. Emery: How do you label your raspberry sirup?

Mr. Lannen: I have taken the stand that where no label at all has been used, then it is not necessary to state it is raspberry. It doesn't need any label.

Mr. Emery: They have labels on the fountain. If they didn't have some way to distinguish sirups I don't see how they could get along at all.

Mr. Lannen: I don't think you will find they have labels on the fountains as a rule. I don't know of any strawberry flavor that is labelled "Artificially Colored," or any of those sodas colored with synthetic dyes, like raspberry, for instance. If they were being sold actually for strawberries, that would be a palpable wrong; but everybody knows what he is getting when he asks for soda-water.

Mr. Emery: The point is, if the thing which the manufacturers object to is merely the trouble to put on the labels, why are they so particular to put on the other labels "Artificially Colored"? If it is so much trouble in one case, why isn't it in the other?

Mr. Lannen: They must label it first in order to tell what it is and they can't simply call it "Strawberry" because it is not that. Therefore they must label it "Artificial Strawberry." They have to label every flavor so that the druggist can distinguish between different flavors which might have a somewhat similar color and appearance. The extracts are labelled in order that the manufacturer may distinguish between these different extracts. He would not be able to tell them apart. But now they have to go and put on this extra "Artificial" label on the bottle of manufactured soda water, where no label of any kind has been used in the past. And it is a great expense and trouble generally.

Professor Shepard: Did you not make the statement that soda waters had no food value, but that they were sold merely to please?

Mr. Lannen: Yes. But I don't want to be hauled over the coals for that. I mean that it is not sold as food. Soda-water flavors are not sold in the sense that flavors generally are sold, as lemon or vanilla extract is sold; that is, for the sole purpose of producing a certain amount of flavor in the food product into which it is put, thus making such extract appear better than it really is would be wrong, while to do the same thing with a soda-water flavor might not be wrong.

Professor Shepard: I thank you for your explanation. Of course, you make your various sodas just as they are delivered to the consumer? Do you know that those sirups carry quite a large amount of sugar sirup?

Mr. Lannen: Yes. There will be quite a considerable amount of sugar present in them. But people don't drink soda water for the sugar there is in it.

Professor Shepard: But that would not destroy the food value because they didn't buy it for that. I am inclined to think that your ground is not well taken.

Dr. Gudeman: I would like to say a few words on this subject. I am a soda-water manufacturer myself; not directly interested in any action you may take because my factory is outside the United States, but as a manufacturer I would seriously object to stating that these soda waters have no food value. I know that the goods that are made in my factory contain from ⅛ to ¼ of sugar sirup, 25 per cent of sugar sirup and we do claim that our soda-water has a great food value.

Mr. Lannen: Mr. Emery has just asked a question which is a very serious one; that is, the question of the labelling of these products. If any kind of label has to be put on each bottle, the cost of it might drive some men out of the business. All these bottles are filled and sealed, and it probably takes more handling to put on a single label than it does to fill all the bottles, and that is a matter of very great expense, both in money and time. I would like to put myself right on one point. The statement I made was that soda waters are sold for pleasurable purposes and not for food purposes, and, as compared with other products of the country that are known as food products, they have practically no food value; but when it comes down to a technical discussion as to whether or not soda waters have any food value I will state frankly that that is a matter upon which I am not in a position to give an opinion. I believe they have some.

Professor Shepard: Dr. Gudeman has alluded to the fact that it is a growing custom to finish a meal by passing around candies and some delicacies like that, and, so looking at them, I am going to believe after this that candies are to be counted among foods. Kansas City has been held up as a horrible example in this matter, and I want to say a word about the presence of color in foods. Soda water is a food under the definition of our law. It is a drink. Color must be declared on the label of all food products except three: confectionery, cheese, and butter. I take the ground that color added in soda waters has been added for the purpose of deception and fraud. I want to say to you, gentlemen, that until a few years ago, eight or ten years, I really thought when I bought a bottle of sarsaparilla that I got the effect of the actual sarsaparilla in that pop. I know people today who buy sarsaparilla by the case because they think that it contains the real sarsaparilla. Now they are being deceived, are they not?

It has been said the manufacturers deem it a hardship to be required to put a new label on their products. The label is required anyway for the artificial flavoring. The word "Color" could easily be added to that label.

Mr. Emery: I want at this time to call attention to what we have conceived to be the necessity for these food laws. It has been plainly shown that the people have been wronged; they have been deceived. These food laws come in to correct those practices. I am not aware of any means by which we can enact laws to correct bad practices unless they do make it a little hard for those people who were doing the deceiving. So that brings us to this question: Is the object of this legislation for the benefit of those who are dealing in these products or for the consumer? And if it is a good thing to have these products labelled "Artificially Flavored," I can't see why it is not just as good a thing to have them labelled "Artificially Colored" if they are so.

Vice-President Ladd: If there is no further discussion, that closes the regular order of business for to-day.

Mr. Foust: There are a number of members of this Association who are going home to-morrow night, and I think it would be well if we selected a place of meeting for the Convention next year. I make a motion that this matter be taken up at this time.

Mr. Emery: If that is open for discussion I would like to say that I don't believe that we are as well prepared to settle where this Convention is to meet another year as the Executive Committee would be prepared to do. A year is a long time off, and I don't think it is the part of wisdom hastily to settle a year in advance where we are going to meet. I don't believe it is best for us to take this up as an Association, but rather leave it to the Executive Committee to make a recommendation. In the choosing of Jamestown for the Convention of this year, I went to Chicago not for a moment intending to vote for this place for our Convention, and I think that was true of every member of the Executive Committee. But when all the letters were read it was plain that the choice of the membership was Jamestown, and so the Executive Committee settled on this place. I should regret seeing any definite action taken at this time to set a place for the Convention next year.

Mr. Bruner: It does seem to me that the members ought to know where they are going next year.

Vice-President Ladd: If I remember correctly, it has been the custom after the invitations have been received, for the members to vote and signify their choice, but the place of meeting was always settled finally by the Executive Committee.

Mr. Kracke: If Mr. Foust will accept an amendment to his motion, I would amend his motion so as to provide that we indicate to the Executive Committee our preference and then, if conditions are found to be satisfactory, they will finally settle the matter.

Mr. Foust: I do not care to accept that amendment.

Mr. Emery: Will the Chair please state the motion?

Vice-President Ladd: It has been moved that we receive the invitations for 1908, and that the Association then decide which they will accept for the Convention next year.

Mr. Emery: If we receive these invitations and then vote here this afternoon and determine where to hold the Convention next year, that would be to change the policy of the Association. I ask for a division of the question.

Dr. Irion: It seems to me that the best plan would be to let this Convention decide now where they want to meet next year; then at least none of us could go home and say that we had nothing whatever to do with fixing a place of meeting and have the excuse of staying away when the time comes. I do not approve of star-chamber methods. I would like to have the Convention meet at New Orleans, but I would like to have every man here express himself.

Mr. R. M. Allen: I hardly agree with the Doctor and I think he is mistaken when he says two or three members of this Association decide where the conventions are to be held. The Executive Committee did not decide upon the place of meeting until a letter had been written to every Department—to each member of this Association—asking for an expression of their views. I, for one, went to the meeting at Chicago wanting to go to the Lakes, but it seemed that a majority of the members had cast their votes for Jamestown, and so the Executive Committee decided for Jamestown.

Mr. Emery: The thing was not decided by any "Star-Chamber" method. Everybody's wish was consulted.

Dr. Irion: I hope no gentleman here took any offence at anything I said in the course of my remarks. Nothing could have been further from my mind than to give offence. But I do think every member ought to have a right to say where these meetings should be held.

Mr. Emery: I agree with you. I think every man ought to have a voice in saying where our Conventions should be held. But the question, to my mind, seems to be whether we can express an intelligent voice in the matter at this time, a whole year in advance, and without knowledge of hotel accommodations, transportation, etc. One of the strongest arguments in favor of coming to Jamestown this year was the reduced rates which were offered by the different transportation lines from all parts of the country. We are not to-day in possession of the rates of transportation which will obtain a year hence and we cannot judge what will be best to do. I think we could not do better than to continue to do as we have done in the past in this matter.

Mr. Bishopp: Simply as a matter of evidence, I would like to ask a question. You say all the members of this Association were consulted as to their wishes in regard to a place of meeting for this Convention. I would like to know how many replied to those letters. If you received answers from all, it would certainly be contrary to the usual thing as regards circular letters. My idea is that it would be the better plan to decide the matter right now, at least as to the meeting-place most desired by the officials present.

Mr. Foust: The point taken by the gentleman from Colorado is well taken. Sometimes mail comes and we are not at home, and it is often overlooked on returning to our offices. I feel that it would be fairer and more satisfactory in every way to take a vote here and now.

Mr. Kracke: My amendment covered the point.

The motion was seconded as amended.

Vice-President Ladd: The motion is that to-morrow morning we receive whatever invitations there may be, and that the Association will then express its opinion as to where it shall hold its next Annual Convention, as a guide for the Executive Committee to act by.

The standing vote taken was a tie.

Mr. Jones: I want to explain why I voted as I did. You say this matter has heretofore been left to the Executive Committee. I did not attend the last two meetings, but I know that the Annual meetings prior to that time were fixed by the Convention. It has only been for the last two years that the Executive Committee has had charge of this matter.

VICE-PRESIDENT LADD: We will vote on the original question. That is, that to-morrow morning, after receiving invitations, we vote and determine upon the place of meeting for the next Annual Convention.

MR. DUNLAP: I would like to know who has a right to vote.

MR. R. M. ALLEN: Each State is entitled to three votes, to be cast by a representative of that State, or each State may cast one vote by determination among the representatives of the States.

MR. FOUST: Suppose there is only one representative from a State present?

VICE-PRESIDENT LADD: Then he is entitled to three votes. Is there any further business? If not, the Convention stands adjourned until 9 o'clock to-morrow morning.

July 18th, 9.30 A.M.

VICE-PRESIDENT LADD: The Convention will come to order. It is getting late and we have a very long programme. It will be impossible to get through to-day unless we go rapidly. Before we take up the business left over for this morning we will call on Prof. James H. Shepard, State Analyst, Brookings, S. D., for his paper on "Like Substances."

"LIKE SUBSTANCES"

By Prof. James H. Shepard, State Analyst, South Dakota.

What are "like substances"? At the first blush the question seems easy. Everybody knows what is meant by like substances. Ask anybody. He can tell you. But unfortunately every answer will be different. In common, every-day parlance the two words are used loosely, comprehensively, lavishly. They are applied to things resembling each other all the way from the most remote resemblance to complete identity. And so, while everybody can define "like substances," the definition will originate from very different mental concepts. In a hazy sort of a way everybody realizes the unsatisfactory status of the expression, hence the attempt to differentiate by the use of such expressions as: "As like as two peas," etc.

In short the word "like" as used for the sake of comparison is overworked.

LIKE SUBSTANCES AND FOOD LAWS.

A little more thought on the part of the author of the clause defining a "blend" as a "mixture of like substances" should have warned him that he was dealing with a very uncertain and to him a dangerous weapon. If the expression "like substances" is so indefinite in its common, every-day use, what would it be liable to mean when incorporated in a pure-food law? This brings us fairly to the question that has so profoundly agitated manufacturers, dealers, consumers, lawyers, and pure-food officials during the past year. Even the President of the United States of America has not escaped. It was just like going back to preparatory school again in order to take a post-graduate course in etymology. But it was a very grim and determined class of boys who were learning and fixing the meaning of "like substances." Little resemblance did they have to the joyous, care-free youth, who are to-day studying their spelling-books and dictionaries. Great interests were involved, and it was necessary that the definition be given and fixed correctly at the very outset. I presume it would be safe to say that no other two words in the English language ever cost so much of thought and treasure to have their exact definition fixed. But I believe that the far-reaching and beneficial results that will follow in the commerce and manufacture of food, beverage, and drug products will fully justify the labor and expense. There is scarcely one of these products that will not be more or less affected. It is true that at the present time, while the dust and fog and confusion of conflict still fill the air and obscure clear vision, each manufacturer sees only the bearing upon his own particular product. And, naturally enough, he gives voice to his own griefs and fears. Meanwhile the public hears only the complaints of those who are most loudly and actively reciting their woes from the house-tops. But to the pure-food official the situation is very different. He hears all sides of all stories, and while the official year is still young, enough has already developed to indicate the profound modifications that are certain to come in the marketing and labelling of very many articles used for human dietaries, beverages, and medicines. But perhaps a clearer understanding of the situation may be had by considering a few specific examples.

WHISKEY AND "LIKE SUBSTANCES."

Of all the interests most actively engaged in defining "like substances," the so-called rectified-whiskey interests, taking the manufacturer's standpoint, stand forth without a peer. This interest, representing enormous capital and vested rights, seems to have been alarmed and unnecessarily alarmed, as I believe, concerning the ruling declaring that whiskey and alcohol are not "like substances." Their particular grievance was that this ruling would deprive them of the use of the word "blend" as applied to a mixture of whiskey and neutral spirits or alcohol.

In lieu thereof, they were assigned the word "compound," which failed to satisfy them in the least degree. In the first place, many of these people have been in business for more than a generation and have grown accustomed to the word "blend" and have a sentimental regard for it. Concerning this sentimental regard it is not to be argued. A man has a right to love and esteem his own wife, his horse, his watch and his own business methods. Of course, if any man's business methods work a damage to his neighbor, he is subject to restraint and must relinquish the offending practice that invades or imperils the inherent rights of his neighbor. In the second place, very many of these people were afraid if their goods should appear with the word "compound" on the label, that great and irretrievable injury would result to their financial interests. Someway they conceived a violent antipathy to the word "compound," just as if the word had a vicious or sinister meaning attached to it, which it has not. It is a good, wholesome word, doing honorable duty in our Pharmacopœia to-day, just as it has done for generations. Then, again, they were afraid that if the people actually knew just what is in the whiskey they had been accustomed to drink, or knew how it was made, they would refuse to buy. Or, in other words, if the goods were labelled a "compound" instead of a "blend," the consumer would discriminate against them. I do not believe this ground is tenable. I do not believe that the average consumer would care a fig whether his favorite brand of whiskey were labelled a "blend" or a "compound." Consequently I cannot see where the compounder's fears are well grounded. But, it may be objected, "the public will become educated." Well, perhaps so. But if the educators have no easier time of it than the average college professor does in instilling all the nice shades of distinction attaching to scientific terms into the minds of average college students, my sympathies do certainly go out to the educators.

During the various hearings that were given to this subject, I have been assured that an overwhelming mass of testimony was submitted by certain so-called experts and by others who were not so expert, trying to prove that whiskey is alcohol and that alcohol is whiskey, all of which every one knows to be untrue. Even the most ignorant navvy on the railroad grade would not accept a glass of alcohol in lieu of a glass of whiskey that he had just paid for.

But when words and facts come before courts and judges for a hearing, sometimes strange testimony is given, strange decisions are reached, and strange reasons given for the verdict rendered.

I do not care at this time to enter into any discussion as to why whiskey and alcohol are not like substances, since I have expressed my views at length in my report to the Secretary of Agriculture. Suffice it to say that they were declared unlike, since alcohol is lacking in those congeneric substances which impart flavor, aroma and taste to whiskey, thus placing whiskey in a class by itself. By some, these substances which accompany the alcohol and water in whiskey have been called impurities. But this view is manifestly wrong, since without these substances there is no whiskey. Then, again, alcohol is a cheaper substance than whiskey.

Now, it is the aim of all pure-food legislation to protect the health of the consumer, and also to prevent him from being defrauded. Hence it seems that substances, to be "like" in the meaning of the law, must be of very nearly equal value as well as to belong to the same highly specialized class. It is true that alcohol and whiskey are like in many ways, commonly speaking. They are both liquids; they both consist largely of alcohol and water; they both contain practically the same congeneric substances, only differing in amount, the alcohol carrying less than the whiskey; but with this difference, that the secondary products in the alcohol are in a raw and uncombined condition; they are both capable of producing intoxication, and, finally, their food value must be very nearly equal. But in spite of all these similarities alcohol and whiskey have been declared unlike, and, as I believe, very properly so. This decision protects the purse and safeguards the consumer from deception, and, as I believe, will work the manufacturer no injury.

There are some who think it impossible to do a profitable business without resorting to some kind of fraud or deception upon the consumer. With this view I have no patience. Neither are those holding such views entitled to any protection or consideration from anybody. Far better would it be to come out fairly and openly and tell the consumer all about it. If a business is allowed under the law, it is quite certain that the goods manufactured will not needlessly injure the health of the consumer, nor will they deceive him if properly labelled. Moreover, if the goods appeal to him the consumer will not needlessly discriminate against them. But we must pass on to other considerations.

MAPLE SUGAR AND "LIKE SUBSTANCES."

For a long time it was the practice of certain manufacturers to use simply enough true maple sugar or sirup to give their products a true maple flavor, while the bulk of the goods consisted of cheaper material, such as glucose or, more frequently, cane products. These goods were labelled as pure maple products. With the advent of pure-food laws these practices were speedily eliminated. Here we have a case where it does not seem so difficult to decide that maple products and cane products are not "like substances." But the food chemist cannot fail to note a very striking similarity between the maple-products case and that of whiskey just described. From a chemical standpoint, the cane sugar is a purer product than the maple sugar. But from the consumer's viewpoint the case is altogether different. So, likewise, from the chemist's standpoint, alcohol or neutral spirit is purer than whiskey. But the consumer again does not agree.

Why should he buy true maple products at an expense four or five times greater than he pays for the cane products? Yes, and the consumer will go far out of his way in order to obtain the true maple products. The explanation is very simple. The maple products, like whiskey, carry certain congeneric substances that impart to them a flavor, taste, and aroma that the cane products do not possess. If we were to term these secondary products "impurities," as some have proposed to do in the case of whiskey, then it would be perfectly fair to say that the consumer pays the enhanced price for his maple products on account of the impurities they contain. And, as in the case of whiskey, these secondary products are in very small amount. There is a small per cent of malic acid, of albuminous substances, and a very indefinite amount of flavoring and a small per cent of ash in maple products. Otherwise cane sugar and maple sugar are absolutely identical. Not only are they "like," if we bar the secondary (or rather, perhaps, I should say primary) products in maple sugar, but, as I said before, they are absolutely identical. Hence the consumer gladly pays for the small amount of substances accompanying the sugar in maple products, three or four times as much as he does for the pure sugar itself. And he does it gladly. He is buying the taste and flavor, and he has a right to them if he chooses to pay for them. Any law or decision that would declare maple and cane products to be "like substances" would be manifestly unfair and would open the way for the practice of fraud on the consumer.

And just in this connection I can well remember how the sirup manufacturers claimed that their business would be ruined by compelling them to state upon their labels that their compound sirups contained cane sugar. Their fears have never been realized. The demand for the compounds has not diminished, but rather increased. It is true that the profits may have shrunken somewhat, but I reiterate their business has not been ruined. The consumer's right to know what he is buying has been safeguarded and the world is better for it.

OIL OF LEMON AND "LIKE SUBSTANCES."

Oil of lemon and lemon extracts offer a very inviting field for adulteration and misbranding. This oil consists principally of the terpenes dextro- and lævo-limonene. But the flavor of the oil is chiefly due to the aldehyde citral, which constitutes from 5 per cent to 7 per cent of the oil.

Of late the citral has been separated and used in making the so-called terpeneless lemon extracts. This, of itself, is not so very reprehensible; but when the extracted lemon oil is used to adulterate good oil of lemon, the consumer is immediately concerned. This is a fraud pure and simple. Then, again, oil of lemon is not the only source of citral. Oil-of-lemon grass carries it to the extent of from 75 per cent to 85 per cent. And this citral from oil-of-lemon grass surely and certainly goes into the manufacture of adulterated lemon extract. In fact, the so-called terpeneless extracts may be made from citral derived wholly from lemon grass. It is true that the slight verbena odor rather militates against this practice.

Here is evidently a case where a change of labelling is necessary. The word "lemon" should not be allowed in the so-called terpeneless extracts. They are simply tinctures of citral, barring slight impurities, and should be so called. It matters not what the source of the citral may be, whether it comes from oil of lemon or from lemon-grass oil. Oil of lemon with all its constituents should alone be used in making "lemon" extracts. If the citral from oil of lemons is removed and purified it is simply citral. It has lost the characteristics of oil of lemon, and is oil of lemon no longer. As a parallel, suppose the alcohol from whiskey be separated and purified. It is no longer whiskey, but simply alcohol. Or suppose that the sugar from maple sugar be removed and refined. It is no longer maple sugar, but simply sucrose. Consequently, as I contend, citral from lemon oil and the lemon oil itself are not "like substances." That is, a part of any substance is not "like" to the whole of that substance.

I am well aware that lemon oil is frequently subjected to gross adulterations. Turpentine, low-grade orange oil, terpenes from oil of lemon and lemon-grass oil are used for this purpose. But these facts are beside the case. Tincture of citral should be labelled tincture of citral and nothing else. I am sorry to note that the tentative standards recently promulgated recognize terpeneless "lemon" extracts, and, worse than that, "terpeneless orange" extract.

VANILLA BEANS AND "LIKE SUBSTANCES."

Vanilla beans are used largely for making vanilla extract. This extract contains resins, vanillin, and small quantities of other extractives. But the chief odoriferous principle is the vanillin. Of late vanillin has been largely produced artificially.

It is to be had from coniferin, or, better, from eugenol, the chief constituent of oil of cloves. It may also be had from synthetic reactions.

Vanilla beans are expensive, and, as in extract of lemon, there is a constant temptation to stretch the vanilla extract as far as possible by the addition of the cheaper vanillin. Of course, the addition of vanillin is not confessed on the label, and the consumer is led to believe he has purchased the pure extract.

Here again the same principle applies. Artificial vanillin is not a "like substance" with vanilla extractive, and its addition plainly calls for a "compound" label. Moreover, a solution of vanillin in alcohol should not bear the word "vanilla" at all. It is simply a tincture of vanillin and should be so labelled. In order to show the effect of the production of artificial vanillin, it may be stated that since 1876 the price of vanillin has declined from about $800 to less than $5.00 per pound.

Tonka beans and artificial coumarin bear the same relation as vanilla beans and artificial vanillin. Consequently, the foregoing remarks apply to them with equal force.

Other examples might be given to illustrate the application of the term "like substances." But time is passing and the foregoing must suffice. Of course, there are such things as substitutes, such as chicory for coffee, but these are not applicable in the manufacture of blends and so they need no discussion.

From what has been said it will appear how difficult it is to give a strict and terse definition of "like substances." Some may infer that, to be "like," substances must be identical. But this is not necessarily true. Take the case of two whiskies, one a Bourbon and the other a rye whiskey. They are not identical, but they are like substances. They are of very nearly equal value and both belong to a highly specialized class of substances known as whiskey.

Again we may take two coffees, one a Java and the other a Mocha. They are not identical, but still they are like substances. They may very properly form a blend, even though their values differ materially. And so, instance after instance might be given where substances are like but not identical.

But why all this discussion and why so much feeling over it? It must be remembered that we are entering upon a new era, an era of pure-food legislation. We have few precedents, a small ready-coined vocabulary, and few set rules of procedure. It has been very difficult to secure this legislation, and its friends are very loath to accept any interpretation for any word or phrase that will weaken or nullify the law. Many of these people are not in trade. They represent the consumer, and they are trying faithfully and conscientiously to safeguard the consumer's interests. They want all products truthfully labelled so the consumer may decide on the proper price to pay.

On the other hand, some tradespeople are alarmed and afraid to relinquish their words and phrases which they have been wont to use so long. Perhaps there is a feeling of distrust on both sides. But these things will pass away and a better era will ensue. Things will be established on a firm and enduring basis. Both sides will be satisfied. The consumer will know just what he is buying, and the honest manufacturer will be safeguarded in every respect. It would be too much to anticipate the millennium, but the era of pure and wholesome food, honestly and truthfully labelled, is worth our brightest hopes, our hardest work, and our most fervent prayers.

VICE-PRESIDENT LADD: There is a committee on bleached flour which I was to appoint this morning, and the other members besides myself on this committee I will appoint now. They are:

DR. A. L. WINTON, U. S. Department of Agriculture.
PROF. A. H. WHEATON, South Dakota.
HON. J. B. NOBLE, Hartford, Conn.
DR. T. J. BRYAN, Chicago, Ill.

(Dr. Ladd is the chairman of the above committee.)

A paper on "Local Slaughter-House Inspection," by Dr. Irving A. Watson, Secretary State Board of Health, Concord, N. H., is the next thing on the programme, but Dr. Watson is not present and we will ask Mr. Robert McDowell Allen, Head Division State Food Inspection, Kentucky Agricultural Experiment Station, Lexington, Ky., to read his paper on "Plain Labelling."

PLAIN LABELLING

By Mr. Robert McDowell Allen, Head, Division State Food Inspection, Kentucky Agricultural Experiment Station, Lexington, Ky.

Plain labelling, fair in theory, is difficult to put into practice. Investments are to enmeshed in the web of fancy which advertising agents and label designers, without regard to the facts, and which imitators of every food term indicative of purity and quality and not protected by trade-mark law, have woven throughout the food industry, that the adjustment of the terms or representations in the labels of foods and drugs means not only great financial loss, but loss to many firms whose products have been misbranded more to compete under a system of unregulated competition than through intent to deceive.

The food industry itself should welcome as much or more than the consumer the enforcement of pure-food legislation. The very foundation and success of business have demanded strictest integrity in transactions among individuals and firms. The brands which have the widest sale have been established by years of square dealing with consumers. And when the food laws require all firms to deal honestly with the consumer, not only as a matter of principle, but as a matter of law, the results will bring a far-reaching benefit not only to the consumer but to every producer, manufacturer, and dealer.

The reasons for using antiseptics and artificial colors, and otherwise adulterating foods, may be controverted, but no one will deny the right of the consumers to know it whenever adulteration has been practised. The Supreme Court of Minnesota goes even farther than this, holding that "no man has a constitutional right to keep secret the composition of a substance which he sells to the public as an article of food."* But however fair the honest label seems in the abstract, there is always a controversy as to whether or not this or that substance is or is not an adulteration, and there is a continual attempt on the part of some food interests to arrange their labelling so as to comply with the letter of the law without giving full information plainly to consumers. This, together with differences in statutes and differences in interpretation put upon practically the same statutes by different officials, and the ever-exacting element of competition in trade, makes it a problem on the one hand to determine what constitutes plain labelling in each instance, and, on the other, a task to enforce it.

---

*State v. Aslesan, 15 Minnesota 5.

LABELLING PROVISIONS.

Food laws have two classes of labelling requirements: First, such provisions as the following in the First Paragraph of Section 8 of the Federal Foods and Drugs Act of 1906, and which are found in practically all of the State laws. Under Paragraph 1 of Section 8, an article of food is misbranded "If it be an imitation, or offered for sale under the distinctive name of another article; if it be labelled or branded so as to deceive or mislead the purchaser; if the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular."

These provisions are sufficient. That is, with the addition of such amendments as may be necessary plainly to tell consumers that an article of food or drink contains any drug or narcotic, or which may be necessary to refer to the consumer an honestly disputed effect upon health of any substance, or to refer the use of a minimum quantity of an injurious substance in order to overcome some problem in preservation or distribution. For example, in the case of foods in the Federal Act, the label is required to bear a statement "of the quantity or proportion of any morphine, opium, cocaine," and so on; and the provision in the same act, Paragraph 5, under the head of Food Adulteration, which permits the use of any preservative which can be removed from the food mechanically, and which has the fact of the preservative with the directions for its removal stated on the label. And, for example, in Paragraph 6 of Section 6 on page 89 of the general food laws of North Carolina, which permits a stated quantity of benzoic acid or sodium benzoate in tomato catsups when the fact "is plainly and legibly stated in the English language on the wrapper or label of the package in which it is retailed."

The food laws contain additional labelling provisions which, as a rule, are not only not necessary, but serve to counteract the effect of the fair provisions just cited, and which differ according to the way in which legislatures have been informed or have been influenced. The Federal Foods and Drugs Act provides, "That an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases: First, in the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food after their own distinctive names, and not in imitation, or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with the statement of the place where said article has been manufactured or produced. Second, in the case of articles labelled, branded, or tagged so as plainly to indicate that they are compounds, imitations, or blends, . . . provided that the term 'blend' used herein shall be construed to mean a mixing of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring or flavoring only. And provided further, That nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this Act may require to secure freedom from adulteration or misbranding."

These added provisions do not guarantee any right which is not already provided under the general labelling provisions referred to above. They do not require any more plainness in labelling, and their only effect will be to hamper the clear meaning of the Foods and Drugs Act as a whole. It may be true that under the Act as it stands, without these provisions, skimmed milk or mixtures of New-Orleans molasses and glucose could not be sold under labelling showing the facts of the skimming or of the mixture, although I do not believe that the courts would so hold; but this could have been remedied by a specific clause without involving a needless controversy as to the meaning of the terms "compound," "mixture," "blend," and "like substances."

The Kentucky law contains splendid labelling provisions both in the section defining misbranding and the section defining adulteration, and then one of these secondary labelling provisions goes on to say that any articles of food "which are adulterated or *misbranded* within the meaning of this Act, but which do not contain any added poisonous or deleterious ingredient, may be manufactured or sold if the same shall be plainly labelled 'adulterated,' or labelled, branded, or tagged so as to show the exact character thereof." The latter part of this provision saves it; but under this provision an article of food "labelled or branded so as to deceive or mislead the purchaser," which is the eighth definition of adulteration, can be sold if the article is labelled "adulterated," or "labelled, branded, or tagged so as to show the exact character thereof." Of course, in construing these two labelling provisions together it would be impossible for a product to be labelled "so as to show the exact character thereof," and at the same time "be labelled or branded so as to deceive or mislead the purchaser." But in the enforcement of the law there is room for a needless controversy on account of the seemingly opposite meanings. It will be noticed, too, that the first class of these provisions are uniform in all of the laws in arrangement and wording, while the second class of the provisions differ, as a rule, so much so that they are not alike in any two of the State laws.

MEANING OF WORDS.

Plain labelling constantly involves the meaning of words.

The courts have universally held in construing all law that words shall be given their ordinary meaning in matters of interest to the public in general, and that the meaning of words used in their ordinary sense is a question of law. In tort proceedings, for example, a word "is to be understood presumably in its natural and usual sense, that is, in the sense in which persons who heard or read or saw it, as men of ordinary intelligence would understand it."*

In the law of contracts words must be given their ordinary sense and meaning except as the meaning may be held by the courts to have had a special understanding by reason of the place, time, art, trade, science, or commerce to which the subject-matter belongs.

Mr. Bonaparte well puts it in his able opinion to the President: "The primary aim of the Pure-Food Law . . . is, in my judgment, to secure accurate and serviceable nomenclature for articles of food"; and he says further, citing opinions of the United States Supreme Court and Circuit Court of Appeals: "I think, therefore, that the proper definition of (a word or term) for the purpose of the Pure-Food Law is a question of law, it being to my mind quite clear that for these purposes the term is to be given its ordinary significance as a word of every-day speech, and is not to be understood in any commercial or scientific sense, as it might be by a distiller or rectifier, a chemist or physician."

ELEMENTS OF A LABEL.

Plain labelling should tell *where a product was made, by whom it was made, when it was made,* and *its true nature and substance.* All of this, and any additional information which the law requires in order to make known any adulteration by addition or deficiency should be, in such *position, type,* and *terms* as will be at once *seen, read, and understood by the average purchaser or consumer.*

It is agreed in the abstract that the true nature and substance should be stated, but there is much controversy when it comes to restricting terms to this or that substance. That *when a product was made* shall be stated in the label has not been admitted, especially by that part of the food interest whose products are liable to be adversely affected by age, or whose products, although just as good as when put up, might not be so considered by consumers, after meat or fish or fruits have remained in the can for a period of years. Placing the date of manufacture upon the label is also objected to by the ice-cream manufacturers and city milk dealers, the cold-storage interests, and some of the packers; for the sale of an egg, a chicken, or a roast would be affected according to the time the label would state it to have been kept in cold storage, and the sale of milk, ice cream, or pie would be affected according to the way the date and the label would indicate the article to be fresh or stale. It is argued that canned meats, fruits, and vegetables are not affected by age when once properly packed and sealed. As applied to some products, when put into proper tins, the contention is reasonably correct· but for food commissioners or legislatures and not consumers to decide this, violates the fundamental principle of pure-food legislation. Certain it is that there are canned products which are still as good as ever after several years, and when the consumer finds this out the date will not hamper the sale. The date when a product was made or packed is one of the indices of superior or inferior quality, and the omission of labelling as to when a product was made is a special privilege to the food industry and a prejudice to the consumer's rights.

---

* Bigelow on Torts, page 288.

The wholesalers object to stating the name of the manufacturer and the location of the factory. The majority of manufacturers wish the label to state this principle of identification, although very few of them say so openly, evidently from fear of discrimination in the wholesale markets. The wholesalers have some good trade reasons for wishing it kept secret. The wholesaler acquires a large property right in a brand by advertising it, a property right which would be always subject to loss if the brand were owned and controlled by the one who manufactures it. Again, if manufacturer A sells his canned pears to wholesalers B and C, the agent of C might be able through the profit made on the sale of a number of articles to sell the pears cheaper to E than could the agent of wholesaler B, which would bring about a loss unless B could meet this competition. Manufacturers of many commodities remedy this by fixing the retail price of their product. It is also argued that the character of the business requires that the similar grades of many factories be combined and put out under one brand. They also object to this principle of identification for the reason that it would be impossible in many instances to know just where a pack of coffee or a pack of sugar was put up, and the name of the packer. All of these objections are matters of legislative detail and are not founded in any right of the trade to keep secret the place of manufacture.

On the other hand, the whole pure-food problem is rapidly coming to a question of sanitation in the dairy, creamery, and factory, and the original character of the meat, fruit, vegetable, or milk packed. The only effective way to control this question of sanitation is to have each package of food identified in the label with its place of manufacture. And, too, food products have superior qualities as they may have been grown in this or that district, or may have been manufactured by this or that degree of skill, and, further, in violating this principle of where a product was made and by whom it was made, that fundamental principle of all trade, which is the very foundation of skill, superior quality. and all art in production, that the producer, manufacturer, or artisan must be identified in the market with the product as its maker, is violated. What constitutes plain labelling has been established over and over by the courts in trade-mark law with respect to *when a product was made* and *by whom it was made*, and, incidentally, these decisions apply to the principles of labelling required to be respected by the food laws.

One court says: "It is the unwary and not the wary who are to be protected as most liable to be taken in by these counterfeits."[1] And then says: "*A lack of truth* debars a trade mark from protection; the tale told by the symbol must be sincere. The instant it ceases to be truthful in spirit as well as in letter it becomes an instrument of fraud, and is not lawful. A qualification true in itself may become fraudulent by the manner in which it is used."[2]

Trade-mark protection has been denied to a product labelled, "Balsam of Wild Cherry," where the balsam was not made from wild cherry;[3] to the "Balsam of a Thousand Flowers," where the compound was not derived from flowers;[4] to "Laird's

---

[1] Gillett v. Kettle, 3 Duer, 624; R. Cox, 143.

[2] Citation 2 of Brown on Trade Marks, Paragraph 71.

[3] Fowle v. Spear, 7 Penn., J., 176; R. Cox, 67.

[4] Fetridge v. Wells, R. Cox, 188.

Bloom of Youth or Liquid Pearl," labelled to be "free from all mineral or poisonous substances," when the so-called article contained carbonate of lead and other noxious ingredients;[1] to the so-called "Hop Essence" for the purpose of enabling brewers to supply the public a liquid which they might represent as being made from pure hops, which was not the truth.[2]

The question of intent recently eliminated from the food laws was eliminated long ago by the courts from misbranding as a defence in action for violation of trade-mark law. The principle was laid down by Lord Cottonham in 1838 and has been followed ever since, that an injunction and remedy would be granted even though the defendant was not aware in any way that his labels infringed upon the labels of others. The Court of Appeals in Maryland in 1884 held that a misrepresentation in trade labelling, although innocent of wrong in intent and essentially harmless in consequences, vitiates all right to redress for infringement.[3]

In the daily work of criticising labels and giving manufacturers and retailers suggestions as to the application of the labelling provisions of the Kentucky law, it is kept constantly in mind that labelling is for the purpose of fully informing consumers, and I remember constantly a statement made in a trade-mark decision by Chief Justice Hargis of the Kentucky Court of Appeals in 1883. He said:

"The trade-mark and trade-reputation pirate always undertakes the difficult task of sailing between the Charybdis and Scylla of the law; and he should never be allowed a successful voyage. If, on the one hand, he escapes the rock of any infringement through the instrumentality of the trade mark itself, he will not, on the other, if courts of equity are true to the principles of their own existence, be allowed a safe passage by the use of any means of deceit or false representation known to the inventive brain of man."[4]

I have recently added to this precedent a statement made by

---

[1] Laird v. Wilder, 2 Bush (Ken.), 131; 15 Am. R., 707.

[2] Estcourt v. The Estcourt Hop Essence Co., 31 L. T., 567.

[3] Siegert v. Abbott, 61 Maryland, 276.

[4] Avery & Sons v. Meikle & Co., 23 A. L. B., L. J., 203.

Chief Justice O'Rear in overruling a petition for a re-hearing in a noted insurance case:

'In construing terms employed in the statute they will be given the meaning which will remedy the evil rather than a meaning that would leave it partly unremedied."[1]

ADJUSTMENT OF TERMS.

When all of these principles are put into actual practice it becomes a matter of determining which substances shall be called honey, butter, sugar, lard, and which substances shall be called glucose, oleomargarin, and so on; then it becomes a question as to how the terms jelly, whiskey, vinegar, wine, sirup, and so on shall be adjusted, that is, whether or not these terms shall be confined to those substances which have been given the terms meaning by the consumers, or whether such terms can be used with the imitation as well as with the genuine, without any representation as to the kind or quality of the jelly, whiskey, sirup, or vinegar sold. The settlement of this question gives rise to much controversy. Each of these terms will be found to have different shades of meaning in the encyclopædias and dictionaries. The first meaning given vinegar is "dilute acetic acid, obtained by acetous fermentation," and there is a long list of vinegars such as "beer vinegar," "raspberry vinegar," "thieves' vinegar," "toilet vinegar," "vinegar of opium." Then, the term vinegar has a general meaning as being something sour. In food nomenclature, vinegar was formerly understood to be an acetous fermentation from the fermented juice of the apple or grape. And the question under the food law arises as to whether or not the unqualified term vinegar should be restricted to fruit and cider vinegars. The term whiskey means in the general classes of alcoholic beverages an ardent spirit, distilled from grain, as distinguished from brandy, an ardent spirit distilled from fruit, or rum, distilled from molasses. To the ordinary drinker, the term means that beverage which will produce the highest toxic effect. To another class of consumers it means a greater or less effect of alcohol together with a certain flavor. Wine has its two meanings, that is, "the fermented juice of the grape or fruit of the vine," and, in general, an alcoholic substance which will produce intoxication. Sirup means at first hand boiled sugar and water, or the boiled sap of the maple-tree, or boiled cane juice. It also means any sweetish, sirupy consistency.

---

[1] U. S. Life Insurance Co. v. Harry Spinks, Ky. Court of Appeals, October Term, 906.

It is contended by those who flavor alcohol in imitation of whiskey, manufacture vinegar from grain, and by the manufacturers of glucose, that by reason of these broad, general meanings they should have equal right with the genuine to the use of these terms as long as their products are kept free from substances injurious to health, and as long as the kind or quality of the sirups, whiskey or vinegar is not misrepresented. There is something in this argument; but, on the other hand, there is a larger profit in labelling a substance "sirup" instead of labelling it "glucose," or the right to do so would not be so strongly contended for; and the sole reason for there being more profit is the fact that the terms sirup, vinegar, and whiskey have different meanings in the minds of the consumers from the terms glucose, distilled vinegar, and neutral spirits. It occurs, though, that if an attempt had been made first to prohibit the misbranding as to terms over which there is no dispute, the adjustment of the meaning of such terms as milk, whiskey, preserves, and vinegar would have followed without so much controversy.

In adjusting labels it is contended by those who put up the substitute or imitation that flavor and color, being infinitesimal in the aggregate quantity, have nothing to do with the question of like substances. Such argument has, though, no support whatever, for it is that infinitesimal bit of flavor which causes the consumer to pay one dollar a gallon for maple sirup, when a gallon of equally sweet sugar sirup could be made for twenty cents. It is that infinitesimal bit of flavor which designates the market price of alcohol at one dollar twenty cents per gallon, when the market price of aged brandy is from three dollars and fifty cents to six dollars. It is that infinitesimal bit of flavor which makes one quantity of cheese worth fifteen cents per pound and another quantity of cheese worth fifty cents per pound. It is that infinitesimal bit of flavor which makes a distilled vinegar worth ten cents per gallon and apple vinegar worth thirty cents per gallon. And so the question of color and flavor, when color and flavor are indices of purity and quality, is the all-important question in determining as to whether one substance is or is not like another substance.

QUALIFYING TERMS.

Under the National Meat-Inspection Act many of the former forms of misbranding are still permitted by permitting the packer to insert the term "brand," or the term "style." And the same precedent is being followed in the enforcement of the National Pure-Food Law, and manufacturers of foods are asking for the right to follow this precedent in labelling products to conform to the State laws.

If the unqualified term is in itself misbranding, then the addition of the words "brand," "style," and "flavor," does not entirely remedy the fault, and such articles of food are still more or less labelled "so as to deceive or mislead the purchaser or consumer." It is unfortunate that certain products now made elsewhere are known only by the name of the district in which the product is first made. A certain class of wine is known as Champagne, and a certain class of sausage is known as Vienna sausage. Construing such terms, though, as words of art, and adding the term "style," together with the name of the place where the product was produced, should not be a label such as would mislead consumers, although if exact justice were followed, these districts are entitled to the protected exclusion of their names to the products produced in them. And if it is unfortunate that the names of these districts have become words of art, the misfortune should not fall upon the district whose name has become a word of art only by continuous imitation. Starting with "Vienna-Style Sausage," there is no reason why this concession should not be extended to all products, until any product made in one district can assume to have been made in that district which has a preference with the consumers by the addition of the word "style." And if other misbranded labels be considered as complying with the law, if the term "brand" or "flavor" is added, the whole purpose of pure-food legislation is defeated until each and every consumer is educated to the fact that these qualifying terms mean imitation and fraud instead of superior quality.

EXAMPLES.

Exhibits A and B represent two cans of meat. A is labelled,

POTTED MEATS
HAM FLAVOR,

and the "Potted Ham" is arranged to itself in the label so that the full label is not noticeable unless the other side of the can is turned. B is labelled:

DEVILED MEATS
HAM FLAVOR.

These labels would be understood by the more intelligent consumers, but sample B was purchased and brought to the Kentucky food office by the janitor as "Deviled Ham," the janitor calling for deviled ham. The terms "Ham Flavor" should not be permitted in these labels unless the product really contains cured ham, and even then the label is misleading to consumers unless the name of the meat which has been ham-flavored is also given in the label. The National Meat-Inspection Act under one of its sections permits "the established trade name or names which are known to such product, and which are not false and deceptive, and which shall be approved by the Secretary of Agriculture." When this labelling is considered under the principles set forth above, it is plainly deceptive, and it is specifically misbranded under some of the State laws, for example, under the Kentucky law which deems an article of food misbranded "if the package or label shall bear any statement purporting to name the substance or substances of which such article is made, which statement shall not give the names of all substances contained in the article in any measurable quantity." Under the Kentucky law, therefore, if the packer attempts to name the meat which is added to give flavor he must also name the meat which has been so flavored, and these labels would then read, "POTTED" or "DEVILED BEEF NECKS, FLAVORED WITH" or "LIKE HAM," as the case may be.

Exhibits C and D are sirups which are not "Maple Sirups," but which are labelled so as to be sold as maple sirups without violating the law. C is called "Famous Quebec Sirup," Quebec being "famous" for its maple sirup. D is called "Pure Vermont Sirup," Vermont being famous for its maple sirup, and, like Quebec, the only source of its sirup production being the maple-tree. D also has the term "Maple Sirup" in the firm's name. Both should be labelled "CANE SUGAR SIRUP, FLAVORED WITH HICKORY BARK," or "FLAVORED WITH MAPLE SIRUP," or "FLAVORED IN IMITATION OF MAPLE SIRUP" as the manufacturer might choose, and the case be.

Exhibit F is labelled

COMPOUND

FRUIT JELLY

Flavor and Color

CURRANT

30 per cent Apple, 70 per cent Grape Sugar

The outstanding part of this label is "Fruit Jelly, Currant." Above is the term "Compound," in ordinary letters, the terms "flavor and color" are in small letters, and the statement "30 per cent Apple, 70 per cent Grape Sugar" is also in small letters, while in addition the term "Grape Sugar" does not mean glucose to the ordinary consumer. This package should be labelled, "COMPOUND GLUCOSE APPLE JELLY, FLAVORED AND COLORED IN IMITATION OF CURRANT." And the terms "glucose" and "apple" should be as prominent as or more prominent than any other part of the label. The manufacturer has changed this label accordingly.

Exhibit G reads "RASPBERRY FLAVOR JELLY," while in small, dim type below is the statement that the jelly is a "compound, 50 per cent Apple Juice, 25 per cent Sugar, 25 per cent Corn

Sirup," and in plainer type and somewhat larger letters is the statement "Artificially Colored." This product is

APPLE JELLY

MADE WITH GLUCOSE AND SUGAR,

Colored and Flavored in Imitation of

RASPBERRY

This is an instance where the manufacturer hoped to comply with the law by inserting the word "Flavor." The consumer has a right to believe, however, that when the term "Raspberry Flavor" is used, the flavor is from the genuine raspberry, and not an imitation of raspberry.

Exhibit H comes nearer complying with the law, but not quite. It is called "COMPOUND GLUCOSE PLUM PRESERVES" in much prominence, and in plain but small type is the information that these preserves are "Composed of Glucose, Plums, Apple Juice, and Cane Sugar." To be labelled plainly the product should be called "COMPOUND PRESERVES" with the ingredients of the compound immediately following, and the percentages of the ingredients of the compound if they are not contained in equal quantities, so that consumers will not believe that the preserves contain as much plum as apple, or as much cane sugar as glucose, if such is not the case. The manufacturer's attention has been called to this label, and his firm states that the corrections will be made.

Exhibit I appears in every way to be an honest label, calling itself plainly "Glucose Apple Jelly."

Exhibit J is called

JELL-O

A Mixture

CHERRY

and in very small type appears,

Color and Flavor Simulated

APPROVED BY PURE FOOD COMMISSIONERS

Gold Medal, St. Louis, and Portland, 1904 and 1905

The Jell-o would naturally be a *mixture* from the very character of the product, and the term "mixture" gives no information of adulteration. The term "Cherry" is by itself and is unqualified. The color and flavor are not from the genuine cherry. The statement "color and flavor simulated" means little or nothing to the average purchaser or consumer. The words "Approved by Pure-Food Commissioners" is a form of misbranding in those States in which the commissioners have not so approved it, and in many States it would be a violation of the law if such approval had been given. And the phrase "Gold Medal, St. Louis and Portland, 1904 and 1905" is an example of the overwhelming evidence which one sees on all sides in the food-control work that world's fair prizes are awarded for considerations other than honest labelling and freedom from adulteration. This product should be labelled "JELL-O, A DESSERT MIXTURE, COLORED AND FLAVORED IN IMITATION OF STRAWBERRY," all of which should be given equal prominence in the label.

Exhibit L is an instance where an attempt is made to comply with the law by the addition on the face in type so indistinct that it is ordinarily unreadable, as follows:

COMPOUND
90 per cent CORN SIRUP
10 per cent REFINER'S SIRUP

This is an instance where the labelling seeks to hide itself by a combination of indistinctness of type, color, and background. This label to be plain should read, "SYLVIA GLUCOSE SIRUP, FLAVORED WITH 10 PER CENT OF REFINER'S SIRUP."

Exhibit M calls itself

BURRO
RIBBON CANE
MOLASSES

in the front of the label, and in the rear of the label is the statement, "Compound Molasses and Corn Sirup." And above the "Compound" is the statement, "The natural, delicious flavor of this Molasses is unexcelled. Only selected and ripe

BLUE RIBBON CANE

is used for

BURRO BRAND.

This label in order to be plain should read in the front, "BURRO RIBBON, GLUCOSE, AND MOLASSES MIXED." And if the glucose and molasses are not in equal proportions, the percentages should be given. If further statements regarding the quality are to be made in the back of the label, it should read something like the following:

"The natural, delicious flavor of this mixture of glucose and molasses is unexcelled. Only selected and ripe

BLUE RIBBON MOLASSES

AND ONLY GOOD CORN STARCH AND PURE SULPHURIC ACID

are used for

BURRO BRAND.

That is, if the corn starch and the acid are up to the standard of such quality.

Exhibit O is labelled, in prominent letters, "VANILLA AND TONKA COMPOUND." The percentage of the vanilla and tonka is given, "16.16 per cent" and "16.17 per cent," respectively. In smaller type, and under "Formula," and in this smaller type is also the information that the product contains "66.67 per cent Vanillin Solution." The formula also states, "Color, trace." To be perfectly plain this label should read,

"COMPOUND OF ARTIFICIAL VANILLIN	66.67 per cent
VANILLA	16.16 per cent
TONKA	16.17 per cent

COLORED IN IMITATION OF VANILLA EXTRACT."

Exhibit P is not an extract of true lemon, but is a colored, terpeneless, lemon flavor, and should be labelled, "FLAVOR MADE FROM LEMON OIL FROM WHICH THE TERPENES HAVE BEEN REMOVED, AND COLORED WITH A COAL-TAR DYE."

On exhibit Q the word "Artificial" can be found if the label is carefully studied. The word "Strawberry" is in black letters on a white background, while the word "Artificial" is in dark letters on a dark background. This product should be labelled "ARTIFICIAL STRAWBERRY FLAVOR, COLORED WITH A COAL-TAR DYE."

Exhibit S is taken from a can of lard, and is another example of misbranding permitted under the National Meat-Inspection Act, and an example of a bad precedent in the enforcement of pure-food laws. The label states, "SILVER-LEAF BRAND LARD." The label formerly read, "SILVER-LEAF LARD." It is the ruling of the Department of Agriculture, so the attorney for this packing firm informs us, that an insertion of the word "Brand" complies with the law, although the lard is not made from leaf fat. Leaf fat is considered the choicest fat of the hog. This comes both from its better culinary properties and from the further fact that leaf fat is only found in fat and healthy hogs. The packing firm states that they have spent millions of dollars in the advertising of this brand, and that it would be a large loss to change it. This contention, however, is not true, for their brand could be used exclusively for pure leaf lard. Although the term "Maple" is included with the leaf, this brand could not protect itself in trade-mark law for the reason that it contains this element of deception, and I do not believe that it will be held to comply with the pure-food laws when the courts are given an opportunity to consider it. Following this precedent, the manufacturer of jellies not made from currant wishes to label his product "Currant Brand Jelly." The manufacturer of vinegar not made from apples wishes to call it "Apple *Brand* Vinegar." The manufacturer of sirup not made from cane juice wishes to call it "Cane Juice *Brand* Sirup." And if a lard not made from leaf fat is permitted to be labelled "Leaf *Brand* Lard," why are not all other food firms who misbrand their products entitled to the same concession, which makes the ruling not only bad in itself, but a precedent which cannot be followed if the consumers' rights are to be guarded in the enforcement of the food laws. And it should always be kept in mind that this labelling is for the sole purpose of fully informing consumers.

Exhibit T shows an attempt to conceal the character of a baking-powder by using the scientific phrase "Anhydrous, Basic Aluminum Sulphate," instead of the term "Alum," ordinarily understood by consumers, and also incorporating this phrase in a body of other reading matter.

Exhibit V shows an attempt of the manufacturer to give ground olive pits and lamp-black the name "Pepina" and to call pepper adulterated with this mixture, "Compound Pepina Pepper," hoping through the provision relating to trade names to escape from the operation of the National Pure-Food Law.

Exhibit X is from a can containing a mixture of coffee and chicory. The package was formerly called "Roasted Coffee." Then the large term "Coffee" was eliminated, and on another side of the can, in a body of reading matter, is the statement that a small amount of chicory is used, "simply a seasoning." The trade label includes a negro woman in the act of drinking coffee from a saucer, and saying, "Dis Coffee shorely is good." The firm next attempted to comply with the law by printing "Coffee and Chicory" under "Roasted" in the label. The firm was informed that the label would still not comply with the Kentucky law until the phrase "Dis Coffee shorely is good" was made to read, "Dis Coffee and Chicory shorely is good," and until the phrase "Coffee and Chicory" was printed in large, prominent type between the word "Roasted" and the word "Luzianne" in the label. The firm is making this final correction.

Exhibit Y is a label showing plainly that the package contains "Coffee and Chicory."

Exhibit Z shows examples of misbranding of whiskies before the passage of the National Pure-Food Law, and the addition of the term "blend," hoping to comply. Note the "Ten years old," "Eight-years-old pure rye," "Hand made," "Well matured in wood," and so on. These products are found to be mixtures of neutral spirits and some whiskey, colored in imitation of whiskey aged in barrels.

Exhibit No. 1 shows the proper and legal use of the term "blend" on a true blend of whiskies. It has been hoped that such construction would be put upon the National Pure-Food Law that the terms "Compound," "Mixture," or "Blend," put upon a product would be sufficient. This mistake will be discovered, though, when the question is passed upon by the courts, for after stating that the product is a compound, the statement that it is a "Compound Currant Jelly" would be insufficient if it were a compound currant and apple jelly, and so on. And when attempt is made to describe the character of the compound, then the other labelling provisions of the law will undoubtedly be held to apply.

Exhibit No. 2 shows a desecration of the American flag in the label, which should not and will not be tolerated, whatever the excellence or purity of the product.

Exhibit No. 3 shows a stock label. This is known in the trade as an "Orphan Label," arranged out of the fancy of the label-maker, and not to meet the qualities of the product upon which it is likely to be put, with enough room to print the name of the first imitator that comes along.

In my judgment the worst form of misbranding of them all has resulted from the error in construing and applying the guaranty clause of the National Pure-Food Law, and that is the unqualified "Guaranteed under the Foods and Drugs Act, June 30, 1906. Serial Number —," which is being put upon all packages of both foods and medicines. The purpose of the ruling which permits this is good, but its effect is misleading and deceptive. The guaranty is only the guaranty of the manufacture, but this form implies that it is the guaranty of the Government; and even if it were the guaranty of the Government there is not present enough laboratory or inspection force to make the guaranty mean anything. In addition, this guaranty appears upon a headache medicine which contains antikamnia and acetanilid, and which is labelled to contain these drugs and becomes the means through which the vender can say to the patient, or the patient may assume, that "the Government guarantees the amounts of antikamnia or acetanilid to be harmless." Again, this guaranty would be a boon to the cheaper class of goods, for although the label may tell the truth, yet the vender will say, "The Government guarantees the quality and food value to be good." It is impossible for this guaranty in its present form to carry a guaranty of responsibility for adulteration found which is its chief purpose, and not at the same time carry a guaranty of quality. And in carrying this guaranty of quality the individuality of brands known for their excellence and purity will be more or less reduced to a level. Some of the manufacturers of high-class brands realize this, and their only hope is that the guaranty will be more or less meaningless with the public. Some weeks ago a pop manufacturer from Winchester, Ky., came into the food office with his labels and his ingredients from which the pops were manufactured. The color, an aniline color, was manufactured, well, say in Philadelphia, and was "Guaranteed under the Foods and Drugs Act." The flavoring extract, we will say, was manufactured in St. Louis, and was "Guaranteed under the Foods and Drugs Act." The other ingredients were similarly guaranteed. It was difficult, and naturally so to explain to this man why he could not sell in Kentucky a product which had been made from ingredients "guaranteed by the National Government." Other instances have been noted, so much so and to such an extent that I believe that the next decision under the National Foods and Drugs Act should be either the repeal of this ruling or such modification as would cause it to carry out its intent without carrying the guaranty of purity and quality. The misleading element of this blanket guaranty should not be confused, as it already has been in Europe, by the brand "inspected and passed" put upon meat products which have really been inspected by the Government, nor should it be confused with the certificate revenue stamps put upon products which have been manufactured under the supervision and control of the Government.

Under the State laws it is a problem to have a spirit vinegar colored in imitation of cider vinegar, imitation lard and similar bulk products sold for what they are. The courts have held, however, in numerous instances that the food law applies to the sale between the retailer and the consumer, and to that quantity of product sold, just as much as it does to the sale between the manufacturer and the dealer. And in the sale of such bulk goods retailers can be required either to display signs stating that "The Vinegar Sold here is Colored in Imitation of Apple Vinegar," and so on, or they can be required to place a plain tag or label upon each jug or bucket as it passes between the retailer and the consumer. A ruling of this kind is being put into effect in Kentucky, and it is especially noticeable at the soda fountains, where signs like the following are displayed: "THE SIRUPS SOLD HERE ARE PRESERVED WITH BENZOATE OF SODA AND CONTAIN ADDED VEGETABLE COLOR."

Mr. Emery, of Wisconsin, took the chair while Dr. Ladd delivered his address.

CHAIRMAN EMERY: The next address on the programme is one on the subject of "Bleached Flour," by Prof. E. F. Ladd, Chemist and Food Commissioner, Fargo, N. D.

PROF. LADD: In flour we have something which enters into the home of every individual, and there is no way to tell in the home, whether it is bleached or not. I have a paper here in which I have discussed this subject rather fully, but I shall not attempt to read it all, although the entire paper will be printed in the report. (Paper follows.)

BLEACHING OF FLOUR

By Prof. E. F. Ladd, Chemist and Food Commissioner for North Dakota.

I take it that among food commissioners, health officers, and sanitarians it may be considered almost as an axiomatic principle that the addition of any unnecessary chemical to a food or beverage shall not be deemed justifiable or lawful in any product until it has been clearly and satisfactorily proven that the chemical or drug as found in the food, should it there remain, is entirely harmless, that it does not injure or in any way lessen the food value, and that fraud in its use is not thereby abetted. Thus the burden of proof falls, as it should, upon those who would add foreign and unessential chemicals of whatsoever kind to any article of food or any beverage intended for general consumption by the people at large, and not upon those whose duty it is to see that the laws are enforced.

In other words, is it permissible to use, either in foods or beverages, products the effect of which upon the system are not well understood? Products which, if harmful, used in continuous but minute quantities can produce injury only after a long period of time. Are we justified in permitting the use of any unnecessary chemical product in food until it has been clearly demonstrated to the satisfaction of the best experts and to the satisfaction of the people at large that the use of such product is absolutely harmless? Has any manufacturer or producer of foods either a legal or a moral right to introduce, unknown to the consuming public, any active chemical into a food until it has been proven perfectly harmless? Or until it has been satisfactorily demonstrated that it in no way injures its food value?

Are we not often enough afflicted with impaired digestion and other ailments, the cause for which is not well understood, without permitting manufacturers, or any one else for that matter, to add even the minutest trace of any contaminating product of uncertain physiological action? What good comes to the consumer from permitting the use of oxids of nitrogen or of nitrogen absorption, substitution, or addition products, or of nitrites in our food?

Anilin butter color was said to be harmless, but it has caused the death of at least two children in North Dakota, and we do not know to what extent it is undermining the health of our people, since it is used in such minute quantities and in only one article of food. Shall we now permit of the introduction even in minute quantities into a product so generally employed as a basis of food as is flour, of a chemical wholly unnecessary in the manufacture and concerning the ultimate effect upon the health of which we know so little?

Winton says: "The chemical bleaching of flour is a matter of grave importance, because the treatment may affect the quality and wholesomeness of the product."

Dr. Wiley says: "At the present time flour is extensively bleached for the purpose of making an inferior article resemble a superior one."

A Committee of the Paris Association of Bakers made a study of the subject of bleaching, and from the commercial tests usually employed by bakers concluded that, although the appearance of the flour was improved by the bleaching, the flour itself and the bread made from it had suffered in flavor, and tnis fact alone was sufficient to condemn the process. They further concluded that it is inadvisable to introduce into a natural product *par excellence*, chemicals which, without adding to its real value, may on long continued use prove to be harmful.

The question of the bleaching of flour is, therefore, one of vital importance because it affects all people, since we are dealing with the most important food product used by man, and it is advisable that there be made as complete an investigation as possible of all features of the subject of bleaching.

The North Dakota Experimental Station has been engaged for some time in such an investigation, especially so with regard to the chemical features. Many arguments and statements have been put forth in defence of the process, none of which seems to the writer to possess sufficient merit to warrant the passing of our final decision upon these data and the argument presented for consideration. For example, the argument that since saliva contains sometimes nitrites (whether this be normal or abnormal has not been shown), therefore the further addition of nitrates to food can do no harm, is as groundless as would be the statement that, since saliva contains potassium sulphocyanid, this poisonous product should be added to our food. Its use as a medicine might be proper, but the presence of either in saliva is no real argument for their use as a food.

Hydrochloric acid is a normal constituent of gastric fluids, but we do not find physicians recommending its use as a beverage or food even in minute quantities.

Bleaching, as investigated by the author, has been produced either by the decomposition of HNO_3 by an electric current, or by the discharge through the air of an electric current causing the union of the nitrogen and oxygen of the air. All agree that the same agent does the bleaching, no matter which method is employed, and the principal bleaching agent is the peroxid of nitrogen. This leads us, therefore, first to consider:

METHODS OF DETECTING BLEACHED FLOURS.

1st. Griess method as adapted from water analysis is as follows: Shake up, say, 50 grams of flour with water for fifteen minutes in a flask, filter, and treat the filtrate for nitrites as in water analysis, the pink coloration giving some idea of the extent of bleaching. The only objection to this method is its delicacy. Unbleached flour stored alongside of bleached flours gives a trace of nitrites, but the careful chemist can distinguish by this method bleached from unbleached flours. The results by this method, if determined quantitatively, are low since it is only the soluble nitrous acid (?) or nitrites (?) that are estimated, and those that are absorbed (?) by the fat, or combined in the fat and gluten, are not estimated by this method of determination. This is clearly indicated further on.

2d. Fleurent's method (somewhat modified). The fat is extracted from 50 grams of flour by ether, filtered, dried for two hours, taken up with petroleum ether and this evaporated to dryness. Now add 2 to 3 c.c. of amyl acetate until the fat is dissolved, then add about 5 c.c. of alcoholic potash (10 grams KOH to the litre). If the flour has been bleached the resulting solution has an orange or reddish tint. If unbleached, the solution has a yellow color.

Precaution should be taken to have an aldehyde-free alcohol, and this was prepared by the method of Dunlap and Bailey (*Journal American Chemical Society*, March, 1906) and is as follows:

One litre of alcohol is taken and to this is added 2 grams of KOH. Of silver nitrate 0.5 gram is dissolved in a small quantity of alcohol, and this gradually added to the alcoholic KOH in a cylinder. Shake thoroughly and allow to stand for twelve hours, then decant off the alcohol and distill. The distillate is aldehyde-free alcohol.

This method has been found to be very accurate and one may, when working with care, detect even the slightest bleaching.

Unbleached flours stored alongside of bleached flours do not show a trace of orange coloration, thus making the method more satisfactory than the preceding one for the detection of bleached flour.

Since the bleaching of flour in a large measure, so far as apparent improvement in appearance is concerned, consists in the bleaching of the strongly yellow-colored oil contained in the flour, in order to ascertain, if possible, what changes the oil had undergone in the bleaching process, a number of oils were extracted from bleached and unbleached flours and these oils were then examined. In each case about 200 grams of flour were thoroughly extracted with ether, the ether distilled off, and the residue taken up in redistilled petroleum ether, the solution carefully filtered, and the petroleum ether thoroughly evaporated off, the yield of oil usually being about 2 cubic centimetres.

Wheat-Flour Oil No. 1 was obtained from a "clear" unbleached flour which had been in the Station laboratory nine months.

Refractometer reading at 25° C. = 58.0°
Refractometer reading at 40° C. = 49.5°
Iodine number (Hanus Mod.) . . = 101.2°

Odor, wholesome, not at all rancid.

The aqueous extract from the flour tested with naphthylamin for nitrites gave negative results.

Wheat-Flour Oil No. 2 was obtained from the same flour as No. 1, but in this case the flour had been well bleached. It had stood the same length of time in the laboratory (nine months) after bleaching.

Refractometer reading at 25° C. = 76.0°
Refractometer reading at 40° C. = 70.0°
Iodine number. . . . . = 84.1°

Odor, peculiar, pungent, rancid, the oil being stringy and glue-like.

Test with naphthylamin on the flour indicated nitrites present in considerable quantity.

These two oils were then examined for the presence of combined nitrogen. A piece of well-cleaned sodium was strongly heated in an ignition-tube and three drops of the wheat-flour oil was then allowed to fall upon the partly vaporized sodium. When cool the contents of the tube was treated first with a little alcohol, and afterward with water. This solution was then filtered, treated with a few drops of sodium-hydroxid solution and of ferrous-sulphate solution, and then boiled for a minute or two. Just enough of dilute hydrochloric acid was then added to dissolve the precipitate, and finally was added a drop or two of ferric-chlorid solution, the presence of nitrogen being indicated by the formation of a precipitate of Prussian blue, which, if scanty, may remain for a considerable time in suspension, giving a greenish-blue color to the solution.

The oil from the unbleached flour gave no trace of combined nitrogen, while the oil from the bleached flour gave a copious precipitate of Prussian blue, indicating the presence of a considerable quantity of combined nitrogen in the oil.

It has been claimed by the advocates of bleaching that it simply ripens the flour in exactly the same manner as aging the flour by allowing it to stand one to four months before being consumed. In other words, merely hastening nature's processes. If this be true, the above oils should have had closely the same refractometer readings and closely the same iodine numbers. The experiment further shows that the nitrogen is not simply absorbed, as has often been claimed, but is in combination.

Wheat-Flour Oil No. 3 was obtained from a "first-patent" *unbleached* flour which had been put up in an air-tight glass jar as soon as received in the laboratory and had been kept in that manner for a month.

Refractometer reading at 25° C. = 86.0°
Refractometer reading at 40° C. = 78.0°
Iodine number. . . . . = 102.9°
Odor, characteristic fresh flour odor.

The flour gave no reaction for nitrous acid or nitrites with naphthylamin hydrochlorid.

Test for combined nitrogen with metallic sodium gave no trace of Prussian blue.

Wheat Flour Oil No. 4 was obtained from the same flour as No. 3, but the bag allowed to remain in contact with some bags of bleached flour in a large zinc-lined box for one month.

Refractometer reading at 25° C. = 88.0°
Refractometer reading at 40° C. = 88.0°
Iodine number. . . . . = 101.8°
Odor,—

The flour reacted strongly for nitrites with naphthylamin.

The oil tested for nitrogen with metallic sodium gave a decided precipitate of Prussian blue.

A loaf of bread of standard size was made from a bleached flour in the same way that test loaves are usually prepared, but without the addition of any foreign fat. The loaf was dried, ground to a fine meal, and extracted with ether, as described above; the oil obtained from it was of greater consistency than the oils from the flour. On being tested for combined nitrogen, it was found to be present without question, but in much less quantity than in the above flour oils.

The oil was extracted from several flours which were known to have been bleached, and in each case the sodium test indicated the presence of combined nitrogen which would seem to show that the bleaching of flour with chemicals is distinctly different from the natural aging of flour and that the presence of nitrogen in the oil obtained from bleached flour may be made to serve as a test for the detection of bleached flour as indicated above.

It is possible that flour bleached by other methods than those with which the author is familiar may not respond to this test, but it is certainly more reliable than the naphthylamin test, or the difference in color of the soaps produced from the extracted oil as described by the French chemist Fleurent.

EFFECT OF BLEACHING ON FLOUR AND ON BREAD.

Flour stored in well-ventilated rooms or exposed to sunlight undergoes bleaching to a certain extent. Fat extracted from unbleached flour on exposure to sunlight undergoes a certain amount of bleaching, but in this case the action is entirely different from the artificial bleaching. Fats and flours which have been bleached in the sunlight do not react to Fleurent's test for bleaching; neither do they give reaction for the presence of nitrites by the Griess method, nor do they show in the fat combined nitrogen. Flours kept in the laboratory, but away from flours that have been bleached, gave none of these reactions at the end of the one year, but do show the appearance of bleaching. That the process of bleaching gives identical results, therefore, with that of "aging" of flour is not true; the only benefit the honest miller can claim, if it can be called a benefit, for bleaching, is the fact that the product is made whiter.

Bleaching results in injury to the gluten and, therefore, in injury to the bread. That the gluten is injured by the process of bleaching may be clearly shown in a study of its expansive properties. If the gluten from like quantities of bleached and unbleached flour be washed out and baked in a Foster's tester, we obtain the following results:

		Expansion.
Sample No. 1	Unbleached	3 inches
	Bleached	2 $\frac{5}{8}$ inches
Sample No. 2	Unbleached	3 inches
	Bleached	2 $\frac{3}{4}$ inches
Sample No. 3	Unbleached	3 $\frac{1}{8}$ inches
	Bleached	1 inch

This is only a repetition of what has been found repeatedly in our laboratory where commercial samples were examined. In order to show the effect of over-bleaching as compared with the same flour unbleached, a quantity of flour was shaken in a flask containing an excess of nitrogen peroxid, the gluten was then washed out and tested as before with the following results for the two samples:

TWENTY GRAMS OF FLOUR TAKEN.

	WT. OF WET GLUTEN.	EXPANSION.
Gluten Unbleached..........	7.99 grams	3″
Gluten Bleached............	4.99 grams	1 ⅜″

The gluten in the bleached product was stringy, very difficult to wash out, and possessed the characteristic smell of modern flour where the bleacher is used. Bread and flour produced by this bleaching was very inferior. It had passed the so-called improving stage, the flour was dark, the bread gray. This condition was similar to not a few samples of flour that have been purchased in the open market, and results whenever bleaching machinery has been renovated or the miller is treating his flame too strong.

During the past year many complaints have come to the writer from parties who have been using flour of this type, over-bleached, and in not a few instances housewives have found it necessary to change the brand of flour, all due to the effect of bleaching. Of course, the millers do not desire this kind of flour; nevertheless, when the process is not kept fully under control such results are secured. The last experiments seem to indicate the oxidizing effect of the oxid of nitrogen on the gluten, and the experiments indicate that there is a union between the nitrogen compound and the gluten itself.

On washing out the gluten from over-bleached flour it seems that all nitrogen gases or nitrites absorbed in the flour itself would be washed away. If the washed gluten be tested in the ordinary way by Griess method for nitrites there is no reaction, but if the gluten be allowed to remain in the testing agent for a considerable length of time there may appear a slight coloration. If the same gluten be washed with alcohol to separate the gliadin, and this alcoholic solution tested for nitrites, we shall get a strong reaction. Carefully conducted experiments with the reagents are negative, as are also experiments made with unbleached flour, thus indicating the probability of combination between the nitrogen compound and the gluten itself.

That the nitrogen is not eliminated in baking is shown in the following cases in bread made in the usual way with yeast:

Sample No. 1, Bleached slightly........	Reacts for nitrites
Sample No. 2, Bleached strongly........	Reacts strongly for nitrites
Sample No. 3, Bleached for trade.......	Reacts for nitrites
Sample **No. 4,** Unbleached..............	No reaction for nitrites
Sample No. 5, Unbleached..............	No reaction for nitrites
Sample No. 6, Unbleached..............	No reaction for nitrites

The oven used in baking these breads was a carefully constructed gas oven, so arranged that there was small, if any, likelihood of gases being absorbed by the bread or even entering the oven. It has been claimed, on the one hand, that by baking all of the oxids of nitrogen reacting as nitrites are driven off, and that the bread will show no reaction, and the same authorities assert that, if unbleached bread be baked in a gas oven, nitrogen products are absorbed and the bread will react for nitrites; to say the least, a rather strange occurrence. It has further been asserted that the oxids of nitrogen are simply absorbed in the moisture and, therefore, easily driven off on heating. That this is not true is fully indicated from the fact that when flour is heated in an oven at the baking temperature and all moisture is driven off, there yet remain nitrogen products which give a strong reaction for nitrites. It is further clearly demonstrated by the experiments which we have already pointed out, that some of the nitrogen was in combination with the fat, also in apparent combination in the gluten. From our own experiments we should say, therefore, that the nitrogen compounds exist in the flour in several forms, absorbed as a gas, taken up by the moisture and forming nitrites with bases when such are present, that enter into combination directly with the gluten itself and combine with the fat to form a tolerably stable compound, which changes entirely many of the chemical properties of the fat. The extent of bleaching will determine to a considerable extent the combination.

Quantitatively we have recovered from one-third to one-half of the amount of nitrites in the bread that was originally in the flour. Thus far we have dealt only with the question of breads made by the usual process, using yeast as a leavening agent. Our experiments, on the other hand, indicate where baking-powder is used, and biscuits, rolls, and like products are baked, there is a breaking up or at least a disappearance of the nitrites, and this fact probably accounts for some of the conflicting statements made by different investigators. The conditions and resulting products are entirely different in the case of bread made with yeast and that made by the use of baking-powders, and almost all bread is now made with the use of yeast as a leavening agent.

LOW-GRADE FLOUR ADDED TO PATENTS.

A series of experiments were carried out to indicate the amount of low-grade flour that could be added to patent flour and "improved." It has been stated that low-grade flour cannot be "improved" by bleaching. We have found that bakers' grade can be improved, but not to the same extent as are the better grades. (This is clearly illustrated in the slides which are exhibited.) While macaroni wheat is not inferior to other wheat in our own estimation, by many it is considered to be inferior and is sold at a much lower figure, often from 10 to 20 per cent lower. Macaroni wheat flour is capable of being bleached as will be indicated by the several slides. To a patent 10 per cent of baker's was added and then bleached, and there was secured a whiter product than the original patent (see slides). This made a loaf that was whiter than the original patent, but somewhat smaller in size. There is another point where they claim there is no difference between the bleached and the unbleached flour. They claim that sometimes the bleached flour makes a larger loaf of bread and sometimes a smaller. In our experiments we have gotten a smaller loaf with the bleached flour every time. These facts are indicated in the following table, where the same amount of flour was used in each case:

	SIZE OF LOAF.
Patent unbleached	19¾″ × 24¾″
Patent, bleached for trade	19¼″ × 24″
Patent + 10% bakers	19″ × 23⅞″

The following were made with the use of macaroni when added to patent flour:

	SIZE OF LOAF.
Patent blended	19¼″ × 24″
Patent + 10% macaroni	19″ × 24″
Patent + 20% macaroni	19″ × 23⅞″

MR. EMERY: Are those samples treated in the same way?

DR. LADD: Exactly. We bleached this ourselves and made it into bread after it had stood for twenty-four hours, to give off the gas. I want to say a word about the effect of bleaching on flour, on the quality of the flour. The housewife makes up her bread, but it will not raise. It will run and spread out. That is the effect the bleaching has on the flour. It isn't the yeast.

From these experiments it would seem that the claim of the manufacturer of bleachers that the patent flour can be increased from 10 to 20 per cent is true; or, in other words, that low-grade flours can be added to the patent, or a cheaper product substituted for a dearer one.

It is a well-known fact, and admitted by honest millers, that they do bleach their "clear" grades. One of the best-known mills in North Dakota has installed two bleachers, one for the patent and the other for the clear. This would indicate well that not only the lower grades are susceptible of "improvement" by bleaching, but, further, that such is the common practice among millers employing the bleaching device. These are the only two grades of flour produced in that mill. Another North-Dakota mill recently received an order for fourteen carloads of clear flour, all to be bleached. The largest mill formerly making five grades of flour now makes two grades, and they have two bleachers.

The only reason that bleachers are used, it seems to me, is because by this method they can increase the amount of patent, improve the color, and lead the public to believe that the product is the well-known white flour. Otherwise, how could millers install and operate an expensive piece of machinery of this kind for bleaching flour, and still sell their product at a lower price than can millers who are producing patent without bleaching? If substitution is not permissible in other products, should it be tolerated in the flour industry?

In order further to determine to what extent changes in the character of the nitrogen take place in the baking of bread, a series of experiments were planned with biscuits made with baking-powder and with bread produced by means of yeast. In each case samples were baked in a gas oven and in a range. The first samples were with flour over-bleached and resulted as follows:

	Baked In	Nitrites	Nitrates
Biscuits..........	Gas oven	React strong	Strong
Biscuits..........	Stove	" "	"
Bread............	Gas oven	" "	Moderate
Bread............	Stove	" "	Fair

It will thus be seen that where a loss in reaction for nitrites has taken place there has been a gain for nitrates indicating the oxidation of nitrites to nitrates. A similar experiment was then made with a sample of commercial flour slightly bleached with results as follows:

	Baked In	Nitrites	Nitrates
Biscuits......	Gas oven	No reaction for	React for
Biscuits......	Stove	" " "	" "
Bread........	Gas oven	Reacts for	Reacts for
Bread........	Stove	" "	Moderate reaction

All products used in the preparation of the bread in the experiments above indicated were carefully tested and gave negative results for the presence of either nitrites or nitrates, and negative results were secured in all samples of bread produced from unbleached flour.

It would thus seem from the above experiments that in cases where nitrites are not found in bread produced from bleached flour of the type which we have worked upon the fact is due to the oxidation of nitrites to nitrates, which are then present as such in the bread; and this oxidation or change is more marked and pronounced in the case of small loaves, where baking-powder or other chemicals are used as a leavening agent. It would, therefore, be erroneous to assume, as some have done, that the nitrites or oxids of nitrogen in the process of baking are volatilized.

Experiments are now projected to determine whether the nitrogen compounds in combination with the fat and the gliadin, but not in the form of nitrites, are also set free or changed in baking-powder biscuits, rolls, etc., but the experiments are not yet completed.

In conclusion we should say in the bleaching of flour:

First: That bleaching results from the action of the oxids of nitrogen upon the flour and to a considerable extent in its action upon the fat.

Second: That the absorbed nitrogen will be found (*a*) as addition or substitution products in the fat; (*b*) in combination with the gliadin of the gluten; (*c*) as nitrites resulting from combination with bases already present in the bread; (*d*) as absorbed gas; (*e*) in some forms of bread, especially those made with chemicals as baking-powder, the products will be oxidized to nitrates.

Third: That the gluten of the flour is always injured by bleaching, the extent of the injury depending upon the degree of bleaching.

Fourth: That bleaching is not an essential or desirable adjunct of the milling process.

Fifth: That all classes of flour are susceptible of being bleached and are bleached in many mills, and where formerly many grades of flour were produced some of these mills now produce but two grades and all are bleached.

Sixth: The process as now employed is, in its general use, a fraud pure and simple, and permits of the substitution of a cheaper product for a higher-priced one.

Seventh: That the producer of the wheat is not being benefited by the process, neither is the consumer.

Eighth: That it injures the flour whenever treated slightly, and the injury is proportionally greater as the product is overbleached.

Ninth: It forces the honest miller either to put in a bleacher or go out of business, for the natural characteristic of the flour is destroyed, and he cannot compete with his competitor who bleaches and substitutes and sells at a less price.

Tenth: It would seem to be a dangerous practice to treat a universal food product with a dangerous chemical, the physiological effects of which in the bread are as yet not well known.

Eleventh: Flour is very susceptible to contamination and readily absorbs odors and gases, and when stored in the vicinity of bleached flour it readily takes up the oxids of nitrogen.

Twelfth: Flour exposed for more than one year in open rooms does not absorb from the uncontaminated atmosphere either nitrites or the oxids of nitrogen in detectable quantities.

Thirteenth: The quality of the bread is always injured, and the characteristic and satisfying flavor of the bread is lessened, and in over-bleached products largely destroyed.

Fourteenth: Is one justified in adding a dangerous chemical product to a food until it has been clearly and satisfactorily demonstrated that the resulting product is entirely harmless, or that it does not in any way lessen the food value of the product?

After the delivery of his address, Dr. Ladd again took the Chair.

VICE-PRESIDENT LADD: Yesterday afternoon it was understood that the first business this morning was to decide the place of meeting for the next Annual Convention. We are now ready to take that matter up. First, however, I want to apologize to the Convention for my blunder of yesterday afternoon in not getting a vote on the last motion put to the Convention. In the discussion which followed that matter was completely overlooked. But we will assume, in the absence of any statement to the contrary, that we are to proceed to the matter now. Mr. Allen, will you present the invitations to the Association?

MR. ALLEN: We have invitations from several places in the State of Michigan, one from Colorado, from Ohio, from Niagara Falls, from New Orleans. We have one from Seattle for 1909, which should be considered in making up our minds now about this next Convention. The rates in 1909 to the West will be very low on account of the Exposition at Seattle. That would give us an opportunity to go West that should be taken into consideration. The places now to be considered are Michigan, Ohio, New York, and Denver, Colo.

Mr. Bird: Gentlemen, in behalf of the people of Michigan, as well as the Department in which I myself am so much interested, I desire to extend a most hearty invitation to meet at that point where the cool waters of the three Great Lakes, Lake Michigan, Lake Superior, and Lake Huron, unite—the city of Sault Ste. Marie. This Convention meets for business, we meet to work, but at the same time we meet in the hope that when we go back to our several homes, we may go back feeling that we have not only benefited ourselves technically in going to the Convention and that our contact with each other has done us good professionally, but that the trip has benefited us physically. This annual meeting of ours comes at a time when most of us like to take a little vacation from our work of the year. And the busy man has that to think of. He can't afford to cut out his work for too long a time. But if he can get a little rest from his usual work and attend the Convention at the same time, so much the better. He wants a change of conditions. Now you come to us at Sault Ste. Marie next year, and we will send you back to your homes after the Convention well rested, and besides this I assure you that you will find in Michigan all that splendid hospitality of the South combined with the invigorating climate of the North. We will give you the best trout-fishing you can find anywhere in the country. And you will be put to less expense in the matter of hotel accommodations than you would be elsewhere. The transportation will be less expensive as well. I have gone over the whole matter carefully, and I find that there is no point in the whole country which can be reached more reasonably than the one I propose. We can always get good rates to Mackinac Island. You will be near the St. Mary's River and within a few hours' ride of Mackinac Island, if you desire to go there too. I propose Sault Ste. Marie rather than Mackinac Island because Mackinac Island is a summer resort, and I think we can afford you better entertainment at Sault Ste. Marie. We can get fair hotel rates. I will guarantee that, and Mr. Grosvenor, who is also interested in having you come to Michigan next year, will bear me out in this. We will guarantee that you can obtain accommodations at the Iroquois Hotel, one of the very best hotels you can find anywhere, at not to exceed $2.50 a day, American plan—and we will go further than that, we will undertake to stand good for any excess ourselves, providing, of course, you will accept reasonable rooms. But I know you can get good rooms for $2.50, American plan.

It is cooler in Michigan than it is here to-day, but we have hot days there in the summer as well as they have them everywhere else; and if there does come a hot day and you are restless, we will take you out on the lakes and hold our sessions on a boat. (Laughter and applause.) We will do more than that. We are within a half hour of as good trout-fishing as a man would want, and we will take you fishing between sessions, or any time you have two or three hours to spend in having a good time. We can afford you every entertainment imaginable. The citizens of Sault Ste. Marie, the Mayor, and our own Commissioners will see to that. The representatives of the big food houses want you to come there. We will have a good time all the time—the nights as well as the days. (Laughter.) We will see to that. And we will see that the ladies of the party are entertained.

Now, gentlemen, I think I have covered everything I had to say, and I do hope that you will decide to come to Michigan next year. You have been there before and I have been told that it was your most successful meeting. I will stand squarely before you for all I have said in regard to conditions there—hotel rates, transportation, etc. This question of expense in regard to hotels and railroads is as I have told you. Some of you could reach us almost entirely by water, and certainly that would be a pleasant vacation trip. I hope you will vote for Michigan.

Mr. Bishopp: I suppose we want good reasons for meeting in any particular place. Personally, it matters little to me whether I meet with you again at the bottom of a coal mine or somewhere in the open country, but, as a matter of fairness, I think we ought to meet again in the West. I think you have had but one Convention in the extreme West, that was at Portland.

MR. EMERY: We have had two Conventions in the West inside of five years.

MR. BISHOPP: Well, we are nearly in the centre of the United States. As far as railroad rates are concerned, I can assure you that the rates to Colorado during the summer time are as reasonable as to almost any other part of the entire country. These special rates obtain every year during the summer season. Then there is another side to it. That is, the amount of good you could do to the Food Department of Colorado by holding this Convention in our State. This is new work with us, and it would do a great good if you hold this great Convention there, stimulating interest in the work and bringing understanding to the people. I am not begging for charity for Colorado, but we do need it, gentlemen. Our new food laws go into effect the first of next January, and a meeting of this sort out there would put the new Commission upon its feet. From that standpoint, I don't think there is a State to which you could bring more good.

So far as hotel rates are concerned, I have in those letters left with the Secretary guaranties of the prices, and I think you will find the prices in Denver will equal those offered in Michigan.

VICE-PRESIDENT LADD: Are there any further remarks?

MR. BISHOPP: I forgot to mention the fact that Denver had a bid in for this Convention last year. We want very much to have you meet there next year.

DR. IRION: Mr. President, on behalf of the people of Louisiana, and those of the city of New Orleans especially, I extend to this Convention a cordial invitation to meet in New Orleans next year. As I said yesterday, we in Louisiana are new to the Pure Food work and need all the encouragement we can get. New Orleans cannot promise you any first-class accommodations for $2.50 a day, but she can furnish such accommodations in new and beautiful hotels at rates that are reasonable. We haven't any great lakes covered with pleasure yachts, but we can take you to ride on the broad bosom of the Mississippi and show you on either side a beautiful and interesting country. So many people in the

North think that the principal commercial products of Louisiana are alligators, mosquitoes, and little niggers, that we are anxious to show you how important Louisiana products are to the commerce of the world. We would like to take you to visit one of our plantations where you can see under one fence sugar-cane, cotton, rice, corn,—four of the most important products of the world,—and in addition an oyster field of almost limitless extent, and all of this natural wealth underlaid by the most remarkable formation of pure rock salt known to the world.

Vice-President Ladd: We will proceed now to the voting by States.

Dr. Bigelow: What is the date? If we are considering Louisiana, we should consider the time it is proposed to go there.

Vice-President Ladd: That will be taken up later.

Mr. Emery: How do we vote?

Mr. Allen: Three votes for each State.

Mr. Bishopp: I think those States not here represented should be consulted.

Vice-President Ladd: That is what we tried to do yesterday, but the Convention ruled to decide the matter this way.

The roll was called by States by the Secretary, Mr. Allen, and the vote was as follows:

Michigan	13½
Colorado	7½
Louisiana	2

Mr. Emery: I move that the selection of Michigan as the place of meeting for our next Convention be made unanimous.

The motion was seconded and carried unanimously.

Mr. Jones: I move that the time of meeting be the first week in August.

Mr. Emery: I would like to hear from Commissioner Bird on that subject. He ought to be able to tell us when would be the best time to go there.

Mr. Bird: I would say about the middle of the month.

Mr. Emery: The second week?

Mr. Bird: The middle of August is really the first time that

I would positively recommend. I think, now that the vote has been taken and the matter settled beyond doubt, that I can well afford to take you into my confidence and be perfectly frank. The fact is there are mosquitoes there before the middle of August. (Laughter.) That was a part of my original invitation—to tell you all about that—but I am always forgetting something. (Laughter.) But there are no mosquitoes there after the middle of August.

Mr. Emery: You guarantee there won't be any after August 15th?

Mr. Bird: Well, I'd say it will be all right to come about the 17th of August. That would be my ideal time.

Mr. Jones: I amend my motion so as to make it the 17th of August.

Mr. Foust: What day of the week would that be? I think it would be Monday. I would like to make an amendment to the effect that the Convention begin on Tuesday, the 18th of August.

Seconded. It was unanimously carried that the Twelfth Annual Convention begin at 10 o'clock a.m., August 18, 1908.

Mr. R. M. Allen: I would like to say that there are four more States here represented than have ever been before.

Mr. Emery: I think we ought to extract that guaranty from the Commissioner from Michigan and make him guarantee there won't be any mosquitoes in Michigan after the 16th of August.

Mr. Bird: I accept your amendment.

Vice-President Ladd: Miss Lakey has here a large number of reports of the work done by the Consumers' League, and she would like to have each of you take one of them with you.

Mr. Emery: I would like to give notice to the members of the Committee on Resolutions to meet at 1:45 this afternoon.

Vice-President Ladd: The Convention will please come to order. The next address on the programme for this morning is one by Hon. E. W. Burke, State Dairy and Food Commissioner, Evanston, Wyo., on "A Review of Food-Control Work in the West."

REVIEW OF PURE-FOOD CONTROL IN THE WEST

By Hon. E. W. Burke, State Dairy and Food Commissioner, Wyoming.

The pure-food situation in the West is unique. We are a race of consumers, consequently the Westerner's view of the pure-food situation must differ materially from that of the Easterner. The Easterner is a producer and manufacturer; the Westerner is a consumer, and his views are the ones, naturally enough, which the consumer everywhere holds. The welfare of the individual stands paramount in his estimation. The Western commissioner feels that he is called upon to stand between the producer and the consumer. It is true that the Eastern commissioner stands in the same position. An Eastern food commissioner frequently is obliged to take into mind the interests of the producer on parity of that of the consumer. The demands of the producer, on the other hand, are secondary in importance to the Western commissioner. His sole thought and aim and ambition is to see that the food reaching the consumer shall be wholesome and free from poisonous material, and of a value which the very best commodities of each class ought to command. With these ideas in view he enters the field, and his work of inspection is very much simplified. When a sample of goods is taken, he asks this question of himself and his chemist: "Are these goods wholesome, are they properly labelled, and do the contents of this can or package represent the value which goods of this class should command?"

I will reiterate,—the conditions in the West are peculiar, and I think in many respects my own State stands alone. There is practically no manufacturing carried on there, while the amount of prepared goods used *per capita* is larger than almost any other State in the Union. Therefore, methods which are used by Eastern commissioners, and that are in vogue throughout the Eastern States, probably would not be found satisfactory in the West.

Some years ago the work was started on, as a sort of process of education. The food laws then in force were taken up individually in person, as far as possible, with the retail merchants, and an attempt was made to educate the consuming public. When goods were found to be illegal the manufacturers or jobbers were notified of the chemists' findings, and requested to put their goods in shape and re-label, if possible. This method was carried on for some time without bringing any cases in court. As a consequence, as food laws were almost unknown in the Rocky-Mountain States, the manufacturers also began a campaign, with the evident full intention of wiping out what little law we had. I will admit that this was, in part, due to the publicity section of our law, which I believe should be in every food law. We immediately changed our tactics by notifying the interested parties that, after a certain time had elapsed, all violations would be taken to court. This was followed by a request that the retail merchants obtain stringent guaranties from the wholesalers or manufacturers from whom they were buying goods. As the law held the retailer to be the wholesaler's, or manufacturer's, agent, it would work a hardship upon the retailer if the responsibility was placed on his shoulders, when he had very little opportunity of determining the true condition of his goods any more than the consumer. It was not the small concerns that we were after. For if the leaders, and the most influential, were brought to time, we believed that the smaller producers would be compelled to come into line. This we found worked entirely satisfactorily, as far as it went.

The laws of the Western States were originally planned after those of the foremost Eastern States, which at that time were considered stringent. However, we found that even with rigid enforcement of the laws they were inadequate. And for that reason we may attribute the first campaigns against coal-tar and anilin colors, and the so-called chemical preservatives which have risen in the West. And even some of the foremost thinkers have gone further than that, and are seriously thinking of advocating the prohibition of artificial colors of all kinds in any food product whatsoever, even in products which most food authorities care little to speak of, and in dairy products. In my own State we still allow vegetable coloring, if the name of the coloring is printed on the label, and under certain rigid restrictions benzoate of soda is allowed as a preservative.

Many of you may think that we have carried our legislation and enforcement, along these lines, too far. But the matter has been given careful study, and I, for one, do not think so.

We have a population of consumers, and not producers of food products. We want to obtain food which is wholesome, non-injurious, and free from adulteration, also labelled in such a way that he who "runs may read." Not a label that you and I understand, but for the men who place the little pack on the back of their burros to search for the precious metals in mountain wilds of our country; for the sheep herders, whose trail may be found all the way across the plains by the empty tin cans; for the homesteader who is carving his little home on the plains; for the mother who lovingly holds her child in her arms, and who is trying the best that she can to raise it to healthy manhood or womanhood.

VICE-PRESIDENT LADD: The next is a paper on "The Guaranty Clause," by Prof. E. W. Magruder, Chief Chemist, Department of Agriculture, Richmond, Va.

THE GUARANTY CLAUSE

By Prof. E. W. Magruder, Chief Chemist, Department of Agriculture of Virginia.

My paper will not be like a cat's tail, it will not be fur to the end.

There is no part of the Food and Drugs Act which has been more talked about, written about, discussed, and abused than the guaranty clause, except the whiskey clause.

Let us see why this clause has been so discussed and abused. In Sec. 9 of the Food and Drugs Act it is provided "That no dealer shall be prosecuted under the provisions of this Act if he can establish a guaranty signed by the wholesale jobber, manufacturer, or other party residing in the United States from whom he purchased such articles, to the effect that the same is not adulterated or misbranded within the meaning of this Act, designating it."

This is an eminently just and fair provision, and places the responsibility on the party who should bear it—the manufacturer, wholesaler, etc. For the manufacturer knows, or should know, whether the goods he puts up or sends out are pure or not; and at all events he is in a much better position to know and can find out the nature and composition of the goods much easier and more cheaply than the retailer. Then, too, the manufacturer is the one above all others who should be held to account for the goods he puts on the market. And, on the other hand, it would be manifestly unjust to require every roadside store-keeper to have each variety of goods he may sell analyzed, when frequently he does not sell more than a few dollars' worth of some kinds a year.

In furtherance of this clause, in the "Rules and Regulations for the enforcement of the Food and Drugs Act" it is specified how the manufacturer or dealer may assume the responsibility and relieve the retailer, and among other methods it is provided that "(*b*) A general guaranty may be filed with the Secretary of Agriculture by the manufacturer or dealer and be given a serial number, which number shall appear on each and every package of goods sold under such guaranty, with the words 'Guaranteed under the Food and Drugs Act, June 30, 1906.'"

By thus registering a guaranty with the U. S. Department of Agriculture, and having a number assigned to it, the manufacturer can place that number on each package of his goods with the legend "Guaranteed under the Food and Drugs Act, June 30, 1906," and by this means notify all of his customers that he holds himself responsible to them for any misbranding or adulteration of such goods. By this means the manufacturer is saved the trouble of sending with each shipment of goods a separate guaranty, and the dealer is saved the trouble of having always to see that this guaranty is received, and the further trouble of having to keep such guaranties to be used in case of adulteration or prosecution.

This is a very good provision, as it saves trouble all around, provided it is not abused; but therein comes the trouble. It has been abused most decidedly. The impression has gotten out and it has been widely circulated that "Guaranteed under the Food and Drugs Act, June 30, 1906," means that the U. S. Department of Agriculture guarantees the goods, which have on them a serial number and the above legend, to be pure and without adulteration.

To such an extent has the serial number been abused that the Secretary of Agriculture has found it necessary to issue a decision (No. 70) on the subject, warning all that "The Department of Agriculture accepts no responsibility for the guaranty which the manufacturer or dealer files," and that it must not be stated or implied that the Department of Agriculture or the U. S. Government guarantees or indorses the product to which the guaranty or serial number is attached, and he further states and emphasizes it that "*The guaranty represented by the serial number is the guaranty of the manufacturer and not of the Government.*"

These statements are certainly plain enough for all to understand, and that too without the possibility of a misunderstanding, provided they are seen. But therein comes the trouble. Very few, comparatively, see "Food Inspection Decision No. 70," but all see the serial number and the guaranty, and all dealers see the agents selling such goods, and the agents can simply call attention to the serial number which is furnished by the U. S. Department of Agriculture and to the guaranty which is prescribed by the Department to accompany the serial number, and allow it to be inferred, even if they do no worse, that as the Government furnished the serial number and the form of the guaranty, it likewise guarantees the product, but they do not call attention to Decision No. 70, or to the fact that the guaranty is that of the manufacturer and not that of the Government. So the abuse of the serial number and guaranty is likely to continue, to a less extent it is true, but still to a large extent, for some time to come, and many consumers will for a long time yet believe that the goods they purchase bearing the serial number and the guaranty are guaranteed to be pure by the U. S. Department of Agriculture.

The wording of the guaranty required by the Department of Agriculture is unfortunate and lends itself to the false interpretation which has been put upon it by the manufacturers and dealers. This requirement is a serial number accompanied by the phrase "Guaranteed under the Food and Drugs Act, June 30, 1906," and the question is naturally asked, Guaranteed by whom? Unfortunately the guaranty does not state, but as it is guaranteed under the Food and Drugs Act, and bears a number assigned by the Department of Agriculture, it can therefore be easily inferred that it is guaranteed by the Department of Agriculture, which has in charge the enforcement of that act.

If the phraseology of the guaranty were changed only slightly, I believe all trouble would be avoided and the possibility of a misunderstanding be done away with. The change that I would suggest is that the guaranty be put in such a form as to make the responsibility rest on the manufacturer, and that, by reading the guaranty, the person giving the guaranty would be stated in such a manner that there could be no misunderstanding. I would suggest the following as a form that would be suitable and relieve all ambiguity. Following the serial number have "Guaranteed *by the undersigned* under the Food and Drugs Act, June 30, 1906," and then would follow the name and address of the manufacturer, wholesaler, jobber, or whoever guarantees the article. Then, if the question as to who guaranteed the article were asked, the answer would be plain enough—"The undersigned," and the name of the undersigned would be there to bear the responsibility, and it would not be possible to shift it to any one else.

I am not wedded to the above phrase, as any other which clearly places the responsibility for the guaranty would suit me as well. "We, the undersigned, guarantee the within substance under the Food and Drugs Act, June 30, 1906," followed by the name and address of the guarantor might be better, but the first form given is shorter and perfectly plain, so I would prefer it.

Such an expression, I think, gentlemen, would obviate all trouble; therefore let the guaranty read thus:

No. 1.

Guaranteed *by the undersigned* under the Food and Drugs Act June 30, 1906. BLANKS & Co., Richmond, Va.

Such a form, in my opinion, would do away entirely with the abuse of the guaranty clause.

VICE-PRESIDENT LADD: The next topic is "Notes on the National Spice Standards," by Dr. William Frear, Vice-Director and Chemist, Agricultural Experiment Station, State College, Pa.

NOTES ON THE NATIONAL SPICE STANDARDS

By Dr. William Frear, Vice-Director and Chemist, Agricultural Experiment Station, State College, Pa.

As the title of this paper indicates, it is not my purpose to give, at this time, a complete discussion of this schedule of standards, but merely to discuss briefly a few points which correspondence has suggested as of special interest, either with respect to the history of the development of the standards or with respect to problems now confronting manufacturers and control officers.

Before entering upon the discussion of details, mention should be made of a few matters pertaining to the schedule as a whole.

Let me say, in the first place, that the chief credit for the formulation of the standards should be given to Dr. A. L. Winton, who consented to act for the Committee as referee on a group of subjects of which spices formed a part. The standards suggested by him were printed in the Report of the Connecticut Agricultural Experiment Station for 1898, and were, in most details, adopted without modification by the Committee.

Among the suggestions formulated by the Committee for the guidance of the respective referees, one stated that "the work is designed to represent goods on sale on the American markets. . . . . It is, therefore, desired that recommendations be based upon analyses of American goods." The referee found that the adulterants commonly used in Europe were quite different from those usually employed in America. Moreover, since each country tends to draw its supplies from certain producing sources, and since, owing to varietal differences in plants, and to idfferences in climate, culture, and methods of preparation for market, spices of the same species but of different origin exhibit considerable dissimilarities in composition, the analytical data obtained in the examination of the spice products or imports of one country afford no satisfactory basis for standards to be used in lands which take their spice supplies from regions not duly represented in the analyses already made. It was furthermore observed that the methods of analysis used by different investigators exhibited little uniformity, and that the components whose kind or quantity served as the basis of judging the standard quality of a spice in Europe, were often other than those selected by American analysts for the same purpose.

For all of these reasons, the referee, while duly regarding the high value of the data gathered, and of the standards formulated by Hanausek, and later embodied, with some modifications, in the Codex Alimentarius Austriacus, felt it necessary to rely chiefly upon American analyses. Of these, however, there were few, Richardson's work in the U. S. Department of Agriculture affording the almost sole contribution to the subject.

Consequently, Dr. Winton himself drew over one hundred samples of whole spices directly from the unbroken import packages, and analyzed them in the laboratory of the Connecticut Experiment Station. The analytical results, incorporated in the report before mentioned, were supplemented by twenty-seven additional analyses in 1899, and by occasional later examinations made at the request of the Committee.

In the formulation of the definitions, not only European authorities, but also American, were consulted, especially the United States Pharmacopœia.

The referee proposed no generic definition for spices, but suggested that it would be desirable to predicate certain qualities for them as a group.

It is true that the spices fall into the same group, not because of any close relationship of the individual spices to one another, but because of certain similarities in quality that lead to a likeness in use. They do not, for example, severally bear to spices as a whole the relation of origin which the several milk products bear to milk or which the several fruit products bear to fruits, neither do they possess the common quality of like preparation which binds the several sirups to the generic substance sirup.

It was, nevertheless, decided in order to avoid the repetition of certain specifications of quality with each of the several standards for the individual spices, that a generic standard for spices should be given, including a definition for the term "spices" and the specification of the following qualities as essential to a standard spice.

First, that it should not have been treated in any manner so as to remove any of the volatile oil or other flavoring principle. This was of course intended to prevent the substitution of spent spices for the normal article, and is in conformity with the Food and Drugs Act of June 30, 1906, section 7, the third clause relative to the adulteration of food, which declares that a food shall be deemed to be adulterated "if any valuable constituent of the article has been wholly or in part abstracted."

Second, that it should be clean. The word "clean" was used to express briefly the suggestion made by the referee in the following terms: "They must be as free as possible from sand, dust, stems, and similar impurities which are liable to become mixed with the products in small amounts during the process of collection or preparation." It was, however, intended to exclude any undue quantity or kind of impurity that might gain admission or be added during the manufacture or marketing of the product. It was recognized that the customary methods of collection and preparation make it impracticable to prevent wholly the presence of some impurities such as dust, and such as clove stems in cloves, but it was the intention to guard against the undue increase of such impurities, whether from carelessness in manufacture or by fraudulent addition.

Third, that they should be sound. The term "sound" is used here, as elsewhere in the standards, to indicate a normality of material with respect to freedom from decay, mould, or insect attack or contamination.

While the terms "clean" and "sound" are definite, and, in a sense, absolute, it was not supposed that in the application of the standards, the control officer would be relieved from the responsibility of using the discretion necessary to determine how rigorously these specifications of the standard should be interpreted.

In the fourth place, a spice should be true to name. This qualification requires no comment.

In most of the schedules the individual standards have been very carefully connected with the corresponding basic or generic standard, by a repetition of the basic or generic name in each of the individual standards. This was intended to bring more certainly to the attention of those who might have occasion to interpret the standards, all of the essential parts thereof. The individual spice standards did not, however, lend themselves readily to the insertion of the generic term "spices or spice." It was, therefore, concluded not to attempt the coupling in this manner of specific and generic standards in this schedule, but to depend upon its position in the general group of standards as the sufficient indication that the qualities given in the generic standard are essential qualities of the individual standard spice.

We may note, as of some interest, the general scope of the spice schedule with respect to the number and kind of spices included. The earliest edition of the Bavarian Vereinbarungen mentioned only 8 spices; the Austrian Codex mentioned 36; the German Vereinbarungen mentioned 25, while our own national schedule mentions 39, including certain ground preparations as distinguished from the whole spice, a distinction that was likewise recognized in the enumeration of the standards in the other lists mentioned. The American standards not represented in the other lists are those for cassia buds, celery seed, cummin seed, dill seed, horseradish, Macassar and Bombay maces, prepared mustard, Macassar nutmeg and long pepper. The German list includes cardamoms, and both the Austrian and German lists include vanilla. Cardamoms was omitted from the American list because of the fact that it is probably not used in American food preparation. Vanilla, considered as a source of vanilla sugar, might well have been included in our list, but came under consideration almost exclusively as the raw material for vanilla extract, and was for this reason omitted.

With reference to the qualities mentioned in these standards: In the organization of the work on standards, a preference was expressed for the indication, so far as practicable, of standard quality in terms of the constituents to whose presence the article owes its food value, rather than for the expression of standard quality in terms of constituents and properties that have no direct relation to the usefulness of the article.

This principle of formulation has, however, been very frequently set to one side. The original plans contemplated a much more extensive description of the properties of the several foods than the conditions developing during the progress of our work have permitted. It became necessary to make sure that, as far as possible, those points of description were included that afford the readiest judgment with respect to the normality of the food in question, or of the nature and extent of its adulteration. It was recognized that in the examination of spices the microscope is the most useful aid in the discovery and determination of the nature of an adulteration, and that chemical analysis is more frequently useful to determine the quantity rather than the nature of the adulterant. For these reasons the standards very rarely fix a minimum for the active principle. Permit me to state, however, that, in my judgment, a careful study of the variations in quantity of the aromatic principles in spices of the various species, varieties, and preparations would result in a contribution of high value to the control officer; for he is constantly confronted with the problem of detecting that kind of adulteration which consists in the removal of part or all of the chiefly valuable constituent of a spice. Such removal is not detected readily by microscopic examination and is shown by an unusual elevation of the other constituents of the spice only when the quantity of the active principle removed is sufficient to form quite a large fraction of the entire spice. In the majority of cases, the total quantity of the active principle in the normal spice is too small to permit detection by such consequent change of proportion, though it is true that the methods of abstraction employed sometimes lead to the removal also of other constituents whose change in proportion affords the means of proving the fact of the abstraction of the valuable principle, even though it affords no exact measure of the degree of such abstraction.

I would not imply that the omission from these standards of limits for the active principles leaves the public analyst entirely without authoritative sources of information respecting the quantities of these constituents to be found in spices of average quality. The compilations of the U. S. Dispensatory and of the U. S. Pharmacopœia, the limits of the German Vereinbarungen and of the Austrian Codex, and the statements in such private works as "The Volatile Oils," by Gildemeister and Hoffmann and the Semi-annual Reports of Schimmel & Co. will, in most cases, enable the analyst to judge whether a very extensive removal of the active principle of a spice has occurred. It must be conceded, however, that there are many gaps in our information; for example, the writer has not found a satisfactory series of determinations of the amount of alcohol extractives in the various kinds of ginger.

It may be of interest in this connection to say that the scientific authorities just named were largely consulted in the preparation of standards for flavoring extracts.

Some properties of the active principles of many of the spices are expressed by limits for a number of essential oils corresponding to the flavoring extracts prepared from certain of the spices, such as anise, celery seed, cinnamon, cloves, nutmeg, etc.

Having dwelt upon some points pertaining to the schedule in general, permit me now to call your attention to a few matters relating to standards for individual spices. The definitions for black and white pepper, respectively, indicate that the former is the dried *immature* berry of Piper nigrum L., while the white pepper is the dried *mature* berry of the same plant from which the outer coating or the outer and inner coatings have been removed. This distinction between the two sorts of pepper involves not only the difference in respect to the presence or absence of the coatings, but also with respect to maturity. The description of black pepper as the dried, unripe berry is practically universal in authorities upon this subject. The Austrian Codex describes white pepper as the white berries of the pepper vine softened in water, then dried and deprived of their external coats. The German Vereinbarungen describes white pepper as the dried ripe fruit, freed from the outer portion of the fruit shell. The following statement, however, is added: "But to-day white pepper is also largely prepared by the shelling of black pepper either by the wet way (softening the grains in sea water, lime water, or ordinary water, and rubbing off the shells by hand) or in the dry way, by putting it through special shellers."

König, in his compendious work on foods, also recognizes this method of preparing so-called white pepper. By neither of the authorities last named is the practice just described adversely commented upon.

In this connection, it may be interesting to note that in pepper milling, the first portion of the pepper meal running from the mill is about as white as ordinary white pepper, the successive fractions growing constantly darker to the end of the run. Through the courtesy of Mr. E. R. Durkee, the writer was supplied with representative samples coming from two runs of Acheen C and Lampong peppers respectively. The first running was represented by 5 samples; the second, by 7. These were analyzed under the writer's direction by Mr. H. L. Wilson.* It was found that the amounts of ash in the first 4 portions of the Acheen C meal were virtually the same, but that the quantity was increased by nearly 1 per cent in the last fraction. In like manner, the first 5 fractions of the Lampong pepper were very similar in ash content, while the last 2 fractions were much higher. On the other hand, the ash insoluble in acid was much more abundant in the first 4 portions of the Acheen C pepper and the first 5 portions of the Lampong pepper, and the alkalinity of the ash was much less in the earlier than in the very last fractions of the meal; so that the separation of tissues occurring during grinding is not like that secured by the ordinary methods of preparing white pepper, except as regards the light color of the first runs from the pepper mill. The analytical qualities of the two products are widely different.

In connection with the pepper standard there were but two points with respect to which many criticisms and suggestions developed. There were some very urgent but not widely representative pleas that the standard for black pepper be so phrased as not to exclude added pepper hulls. The plea was made on the theory that the hulls, being a part of the pepper grain and having spice value, were properly to be regarded as "pepper."

---

* See Report of the Pennsylvania Experiment Station, 1903–4, pp. 138–9.

This contention was, of course, to be considered on a par with a request that the addition of wheat bran to graham flour or skimmed milk to milk be allowed as not affecting the standard quality of the graham flour or milk. It was, furthermore, clear that, owing to the low spice value of pepper hulls, their addition to the product obtained by grinding black pepper results in reducing or lowering the spice strength, and probably in otherwise injuriously affecting the quality of the pepper; and that, therefore, such addition must be viewed as an adulteration under the terms of section 7 of the Food and Drugs Act of June 30, 1906.

The second point of criticism on the subject of black pepper related to the maximum limit specified for ash. The referee's recommendations were for total ash, 6.50 per cent, and for ash insoluble in hydrochloric acid, 2 per cent. The Bavarian Vereinbarungen for 1885 likewise fixed 6.50 per cent as the maximum for total ash; the Austrian Codex made this limit 5 per cent, and the German Vereinbarungen, 7 per cent. For ash insoluble in hydrochloric acid the maximum limits proposed by Dr. Winton were the same as those given in the Austrian Codex and the German Vereinbarungen. The point made in the criticism was that, while the total ash limit of 6.50 per cent undoubtedly was sufficiently liberal in the case of most black-pepper varieties, there were nevertheless certain varieties which constituted an important part of the pepper imports of the United States that were in danger of frequent exclusion from the country because of this ash limit. It was urged that as the spice value of the varieties in question, particularly Acheen C, was really quite high, it would be better to raise the ash limit sufficiently to permit the import of such pepper.

Before deciding upon the point in question, a conference was had with representatives of a number of the larger spice-grinding establishments of the country. It developed that, in reality, the variety of black pepper known as Acheen, grade C, was the only black pepper about which much solicitude was felt. The representatives of the Standards Committee made the following inquiries: Does this variety of pepper constitute a very important element of American pepper imports? The reply was that the present importation of Acheen C, as shown by brokers' certificates which were submitted to the Committee, constituted about 16 to 20 per cent of the entire pepper imports at the port of New York.

It was then asked whether some other source of supply furnishing a cleaner pepper might not be chosen. The reply was that the consumption of pepper is increasing faster than the supply, and that, if we were to exclude this variety, it would mean a material increase in the cost of pepper.

It was then asked whether it would not be practicable to insist upon a better preparation of the pepper prior to its exportation from the country of production. The reply was that the district of Acheen is a semi-civilized, nominal dependency of the Dutch, and that the Amsterdam buyers have made efforts to secure an improvement in the methods of production, but without avail; that the high ash content shown by many of these peppers is due to two facts: First, that the berries are harvested in an unusually immature stage of development in which the coatings with their higher ash content form an unusually large proportion of the entire berry; second, that for the drying of the berries the method was to place them upon mats, or even upon the ground, and dry in the sun, and that, consequently, a large proportion of clay and dust unavoidably attached itself to the very deeply wrinkled surface of these unusually immature berries. It was, furthermore, stated that most of the New York imports are bought through London, and that the London spice dealers regarded the Acheen pepper according to the size of the berry, the very smallest grades being denominated "D" and "shot" Acheen, which probably required no special consideration. In the process of grading, the dust was largely removed, but as a result of the attrition during the journey from London to New York, a large additional quantity of dust was formed, consisting chiefly of particles of the brittle outer coating of the berries, but that, notwithstanding the facts above mentioned, a high ash content frequently remained.

It was then asked whether it would not be practicable to clean the berries before subjecting them to the milling process. The reply was that it was customary to screen them and to remove the dust as far as practicable by the use of a blower, but that this variety of pepper was far more brittle than, for example, the heavy Singapore berries, and would not stand the brushing process.

Samples were drawn by the Committee's representatives from unbroken packages of Acheen C pepper. Samples drawn by Dr. Winton from packages in the warehouses of 3 different importers showed respectively 5.40, 6.26, and 5.83 per cent of total ash, a sample taken by the writer, 5.39 per cent; 2 earlier analyses made by Winton, Ogden and Mitchell showed 6.10 and 6.35 per cent, and 2 made in 1903 by Mr. R. E. Doolittle showed 8 and 8.04 per cent. It was the judgment of the Committee that the limit of 6.5 per cent would be exceeded in comparatively few cases.

Considering the effect of the Acheen C upon the ground-pepper stock of the country, it was recognized that the majority of brands of ground spices were really mixtures of several varieties of spices, the practice of mixing being used to secure slight differences in flavor, and also to secure different gradations of cost. An inquiry was made, however, to ascertain whether in present practice Acheen C pepper was ever ground for sale unmixed. The result of the inquiry developed the fact that it was not, but that pepper-grinders desired to remain free to avail themselves of the opportunity of preparing such a ground pepper, should the market conditions make it desirable. In view of all these facts and especially in view of the fact that the standard adopted must apply both to the whole spice as it is imported as well as to the ground spice found in the retail trade, it was decided to increase the maximum ash limit to 7 per cent, the amount fixed in the German Vereinbarungen.

Another matter of interest developed in connection with the standards for the commercial food products prepared from various species of capsicum. The Austrian Codex had defined paprika as the powder obtained from the ripe fruits of various large-fruited capsicums, especially *C. longum* D. C., and *C. annuum* L. This definition indicates that the entire fruit is used in the preparation of the product, and this further appears from the statement in the histological description which forms a part of the section on paprika; namely, that the powder consists of the tissues of the fruit epidermis, ovaries, and seeds. The Codex also defines Cayenne pepper as the powdered fruits of small-fruited capsicums, especially *C. fastigiatum* D. C., *C. frutescens* L., *C. baccatum* L., etc. (A note, by the way, adds that American Cayenne pepper is a mixture of cereal flour, Cayenne pepper, and water, which has been baked and ground.) The descriptive note adds that Cayenne pepper has a lighter tint and sharper flavor than paprika.

The German Vereinbarungen defined paprika as the dried, ripe berry fruits of several species of capsicum, especially *C. annuum* L. and *longum* D. C. It adds, "as Cayenne pepper occur in commerce the powdered fruits of other, especially small-fruited, species of Capsicums (*C. fastigiatum* D. C.). Paprika varieties have lighter (rose paprika) or darker colors, according as the red fruit shells are taken as free as possible from the inner parts of the berry or not." Most Hungarian writers, in describing paprika, which is very extensively prepared in that country, specify that the seeds shall be excluded. The referee in his recommendations defined "Cayenne pepper, Cayenne; red pepper," synonymously as "the dried ripe fruit of *Capsicum fastigiatum* D. C., *Capsicum frutescens* L., *Capsicum baccatum* L., or some other small-fruited species of Capsicum," while "paprika" was defined as "the dried, ripe fruit of *Capsicum aroma* L., *Capsicum longum* D. C., or some other large-fruited species of Capsicum." So that the recommendations followed almost exactly the form adopted in the Austrian Codex. Further study of the subject led the Committee to believe, however, that paprika should not include the seeds and stems of the large-fruited Capsicums without special mention of the fact. The standard was, therefore, so framed as to exclude them.

Considerable correspondence was received, calling attention to the fact that many new Capsicums are being imported that do not easily fall into the two categories above defined, especially certain large-fruited peppers of bright red color, considerable strength, and delicate flavor imported from Japan; also, large peppers coming from the Niger River and from India that are so pungent that on the score of strength they would be classed as Cayenne. The Japan pepper is said to be especially valuable for mixing with Zanzibar peppers, which are quite dull in color.

Moreover, in Louisiana there is being cultivated a large pepper of very great strength, beautiful color, and fine flavor, which, because of its strength, would not class readily as paprika. It was further urged that such large peppers as the Mexican Sweet Chili should not be sold as paprika. After full consideration of the difficulties of the situation, it was decided to recommend a separate standard for "red pepper," so that under this name the red, dried ripe fruit of any species of Capsicum might be sold, while the terms Cayenne pepper and paprika were confined to the products prepared from small-fruited and large-fruited Capsicums respectively. It has been urged that there should be no prohibition against the artificial coloring of Capsicum products, that are of high quality in all other respects, save that of brightness. The Standards Committee has been obliged, however, to regard all additions of this kind as abnormal. Whether they may be made without violation of the law is a question to be determined by the provisions of the National Food and Drugs Act.

The standard for mace recognizes as properly salable under that name the seed mantle of Banda or Java mace exclusively. In this respect, our standards are like those of Austria and Germany. There was considerable urgency on the part of a few spice dealers to have the standard extended so as to include the corresponding products, Macassar or Papua mace and Bombay mace, the former of which does possess considerable spiciness (distinct, however, from that of the Banda mace); while the latter has very little spice quality. Those who urged the recognition of these products last named stated that while they do not possess such quality as would lead to their use unmixed, they are valuable in producing certain blends of flavor and aroma that are agreeable to many palates, and that the effect of the admixed Papua and Bombay mace is not simply to diminish the strength of the Banda flavor, but to introduce certain desirable shades of effect which cannot be secured by any other addition. These mixtures, it was claimed, are especially employed in the preparation of various sauces and pickles. The judgment of the Committee was that, since this use forms but a very small fraction of the total uses to which the spice is put, it would not be wise to bring the majority of consumers into danger of being supplied without notice with an inferior product, when the mixture exceptionally employed can be marketed under its true designation as a mixture of Banda and Macassar or Bombay maces; that is to say, if the mixture has, for certain purposes, a value superior to that of the Banda mace alone, there can be no disadvantage in the dealer's offering it for that purpose under a designation which clearly makes known the composition of the mixture. The standard for "mace" was therefore retained in its original form, and separate standards for the Macassar and Bombay maces were included.

The maximum limit for ash in cinnamon and cassia was the subject of considerable suggestion. Careful study of the results of analyses of authentic samples of whole spices did not indicate that the 8-per-cent limit originally proposed was too narrow, but, instead, that, if it erred in any direction, it was too liberal. On the occasion of the conference relative to ash in Acheen C pepper, the attention of the Committee's representatives was called to the fact that the ash maximum for cinnamon might exclude broken cassia. Broken cassia would, of course, not have its ash content raised simply by the breaking, but only because this cinnamon, which comes chiefly from China, is very carelessly handled, and frequently loaded with impurities; thus, one of Winton's earlier analyses of an impure broken cassia showed 20 per cent of ash, while the coarser portion of the sample yielded less than 6 per cent, and the fine portion of the sample over 34 per cent. It has seemed to the Committee unwise to allow products of such impurity to appear upon the market under the name applied to the standard product. In fact, at the last revision of the standards, the Committee moved in precisely the opposite direction and reduced the maximum ash limit to 6 per cent instead of 8, the figure previously given both in our standards and in those of Austria and Germany.

At the same time that the change was made in the ash limit for cinnamon, the same change was made in the maximum ash limit for ginger, which had first been set at 8 per cent for unlimed ginger. A study of the ginger imports had led to the conclusion hat the ash limit first adopted was encouraging the importation of poorly prepared material, and also was encouraging the adulteration of ground ginger by the admixture of earthy impurities.

It is possible, of course, that the limit may have been set a little too low. The writer has carefully classified the analyses reported by König for gingers of known purity, and has found that, excluding the limed ginger samples, eighty samples contained ash as follows: Four per cent of the samples, from 2 to 3 per cent of ash; 43 per cent of the samples, from 3 to 4 per cent of ash; 30 per cent of the samples, from 4 to 5 per cent of ash; 15 per cent of the samples, from 5 to 6 per cent of ash; 6 per cent of the samples, from 6 to 7 per cent of ash; 1 per cent, from 7 to 8 per cent of ash; and 1 per cent of the samples, upward of 8 per cent.

Recent series of analyses of American brands of ground ginger are showing a considerable proportion of samples with ash limits between 6 and 7 per cent. What the reason for this may be is not clear, but it is probable that the matter deserves further investigation.

Vice-President Ladd: The next paper is one on "The Sanitary Side of Production, Manufacture, and Distribution of Food Products," by Dr. T. J. Bryan, State Analyst, Chicago, Ill.

THE SANITARY SIDE OF THE PRODUCTION, MANUFACTURE, AND DISTRIBUTION OF FOOD PRODUCTS

By Dr. T. J. Bryan, State Analyst, Illinois.

The importance of sanitary conditions in the production, manufacture, and distribution of foods was never greater than to-day, for less of the food consumed by the individual is produced and prepared at home than ever before; and likewise the necessity for sanitary laws in regard to foods was never more keenly realized. The disclosures of the insanitary conditions in our packing-houses, exaggerated in many instances, has aroused public indignation. The newspapers added fuel to the flame by rehashing every case in recent history containing anything grewsome or revolting in connection with the preparation of food products. These reports appearing day after day in the newspapers gave the public the false impression that the manufacture of human bodies into food products was a matter of not uncommon occurrence and that insanitary conditions prevailed in the manufacture of most foods. The discussion was continued until not only this country but Europe looked with suspicion on the food products of the United States.

Revolting as the individual instances were in all the cases above referred to, we believe that foods of all kinds are to-day produced and manufactured under as sanitary conditions in this country as in any other; but because of the public awakening in regard to this matter and because of foreign prejudice against our goods, and especially because of the importance of the matter itself, food officials should consider what laws should be enacted to enforce just and safe regulations for the maintenance of sanitary conditions in the handling of food products.

Sanitary conditions must be maintained at all times in the production, manufacture, and distribution of foods, for two reasons: First, to prevent the spread of contagious and infectious diseases; and second, to prevent the decomposition and putrefaction of foods and thereby secure their delivery to the consumer in a clean and wholesome condition.

Simple as this statement of the case may seem, the draughting of an effective law, which could be enforced uniformly, preventing these two things is by no means simple. These difficulties are partly due to the fact that the conditions under which different foods must be transported, manufactured, or taken from their natural sources are themselves so different. This is clearly seen when one considers the possibility of a single sanitary regulation covering the water and ice supply, the production of milk, and the slaughter of cattle.

In the sanitary handling of vegetable and fruit products and the storing of grains, butter, and poultry, each presents its own problem. It will be apparent that a statute couched in general terms, restricting the production, manufacture, and distribution of foods except under sanitary conditions, would in every instance necessitate expert testimony as to what constituted sanitary conditions as affecting the final product, and there is no question but that many courts would come to different decisions in parallel cases, and judges would probably not be wanting who would hold that the food was produced under sanitary conditions even though the common sanitary precautions had not been exercised, if it were not shown that the finished product had been itself unwholesome and consumed with ill effect.

It is therefore desirable that specific laws should be enacted governing each of the different classes of foods which are produced and manufactured under like conditions. This is the only effective method followed in the past and the one which will doubtless be followed in the future. The questions that must then be answered are, What are sanitary conditions for each particular class? and by whom shall the law when enacted be enforced?

To attempt a discussion of sanitary conditions for each class of foods handled under similar conditions would require too much time for a paper of this kind. The milk and ice supply of our large cities and of many of the States are already protected with sane regulations in regard to sanitary conditions of production. The meat supply from our large slaughter- and packing-houses are also under an adequate sanitary inspection and the large manufacturers and dealers in food supplies are opening their factories and storehouses to the public and showing a care for sanitary matters which excels that in many homes. Matters of ventilation and light, the cleanliness of the rooms, utensils, and the cleanliness of the employee and the clothes he wears are receiving the closest attention in most of our large food manufactories. Besides this, the manufacturer realizes that absolute sanitation cannot be obtained when the hands come in contact with the food; and the introduction of mechanical carriers and of mechanical devices for the sterilization and filling and sealing of packages is becoming more and more common among the larger producers of food products, not only for the purpose of reducing expenses, but quite as much and often primarily as a matter of sanitary precaution. Laws requiring the high grade of sanitation found in some of our largest food manufactories would drive many small firms out of business. But the careless manufacturer and small producer should be required to maintain better sanitary conditions than are maintained at present. There is no reason why food should be manufactured, transported, or produced under conditions which would be considered repulsive in the average American home.

Special sanitary laws are needed with reference to flesh foods and such animal products as milk, which, when produced under insanitary conditions, are most likely to cause the spreading of disease. Sanitary inspection of all places where animals are slaughtered is essential. The small, uninspected slaughter-house is a menace to public health. Likewise inspection of dairies, cow-barns, creameries, and cheese factories should be extended to cover all sections of all the States, and should be of the same character as that carried on by New York City, Chicago, and Boston. Sanitary inspection should be extended to all manufactories of food products and, to safeguard the public interests, must not stop short of the grocery store and the meat market and the hotel and the restaurant.

The enforcement of these sanitary conditions would naturally be the work of the Board of Health, but the large increase in the force of inspectors necessary to perform the work, and the possibility of the work being done by inspectors of other departments and thus saving the money of the State, are in some States resulting in the work being distributed among different departments. Thus in Illinois, although the Health Department already had jurisdiction in all matters pertaining to public health, powers to enforce sanitary conditions were granted to both the State Factory Inspector and the State Food Commission. Here the powers of all three departments overlap, and, though we feel that under the present administrations this duplication of powers will not result in a conflict between the different departments, it is undesirable.

Work is done best where there is one party who can be held responsible for its non-accomplishment. Under the control of a single department there would be no conflicting opinions as to requirements in particular cases, no unnecessary duplication of inspection, the manufacturer or dealer would know with what requirements he must conform, and a complete report of sanitary conditions in the State could at any time be secured from one source.

There is also a question as to the qualification of food inspectors, factory inspectors, and others to whom these powers may be delegated to make just and thorough sanitary inspections. Doubtless, some are qualified and some are not. If only those inspectors of other departments who are deemed to be qualified by the State Board of Health were empowered to make sanitary inspections, and they were required to report to the Board of Health as well as their own department, and if the Board of Health were made the judge in case of a dispute between departments, we would have a better solution of the problem than we have at present.

VICE-PRESIDENT LADD: The author of the next paper, Prof. Charles D. Howard, Chemist, State Board of Health, Concord,

N. H., who was to have given us a paper on "Fillers in Canned Goods," is not here. I will announce the Committee on Nominations, after which the meeting will stand adjourned until 2 o'clock this afternoon.

Committee on Nominations:

Mr. Kracke of New York.
Professor Barnard of Indiana.
Dr. Fisher of Wisconsin.

Adjourned until 2 o'clock.

July 18th, 2 P.M.

Vice-President Ladd: Gentlemen, it is now past the time when this meeting should have been called to order. The Committee on Resolutions wants to have a meeting early to-morrow morning. I call your attention to this now so that all the other committees can get their resolutions in this evening to the General Committee on Resolutions. We will now proceed with the programme. The first paper this afternoon is by Mr. Henry Beach Needham, Secretary of the People's Lobby, of Washington, D. C., on "The People's Lobby and Its Pure-Food Work."

THE PEOPLE'S LOBBY AND ITS PURE-FOOD WORK

By Mr. Henry Beach Needham, Secretary of the People's Lobby,
Washington, D. C.

A Southern Senator who openly opposed the most popular measure enacted by the Fifty-ninth Congress was strangely blind to the tide of public sentiment. This misguided member of the United States Senate earnestly argued against the enactment of the Pure-Food Bill. Under the pretence of regulating interstate commerce, he contended, the National Government proposed to interfere with the police power of the States. Just three of his colleagues accepted this reasoning; for, as you know, there were but four votes recorded against the bill. In consequence, the distinguished Senator went to his home with drooping spirits, and sought consolation from his wife. The Senate, he told her, had passed a measure which violated the basic principle of their party, yet only three of his colleagues had voted against it. Really, he did not see what greater misfortune could befall the Democracy.

"That *is* too bad," interposed the lady. "What bill is it?"

"They call it the Pure-Food Bill," replied the legislator.

"Oh! I am in favor of *that* bill," said the Senator's wife.

In recounting this significant incident, the Senator sorrowfully remarked, "What can a man do against a sentiment so widespread as that?"

What indeed! Of that aroused public sentiment I would speak: first, in its relation to the splendid achievements of the State Food and Dairy Commissioners; and, second, in its bearing on the organization and work of the People's Lobby.

In the fall of 1905, before the convening of the Fifty-ninth Congress, I was commissioned by one of the magazines to ascertain why it was that no pure-food legislation could be obtained at Washington. Editors were then discussing the refusal of the upper branch of Congress to permit a vote on the Food and Drugs

Bill after seventeen years of delay, and in such terms of opprobrium as the "obstructive Senate" and the "Senate of special interests" was found the plain-spoken explanation for this inexcusable failure to legislate. While editors, even in this day of independent thinking, do mould public opinion, more truly do they reflect and interpret popular sentiment. Particularly is this true of the magazine editor, who, with his ear to the ground, must discern what his readers are likely to demand, and provide the "feature" before they have reached the point of asking for it. Thus, wide-awake editors had noted a growing determination on the part of the people at large to wring from Congress a measure which would safeguard the food and drugs entering into interstate commerce. But why was there such a sentiment? Who were responsible for it?

Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry, Department of Agriculture, will be known as the father of the Food and Drugs Act. It is an honor which this rare public servant justly deserves. But without detracting in any way from the value of his services, it is only fair to say that to the Food and Dairy Commissioners comprising this Association is due a large measure of credit for the placing of the Pure-Food Law on the statute-books. This is not idle flattery. In their several States these commissioners began the work of reform. They educated public sentiment; they aroused their people, first, to demand of the State legislatures food and dairy laws, and then to insist that such statutes be enforced without fear or favor. It was these commissioners who, convinced that the co-operation of the Federal Government was essential to bring about efficient food control, urged their constituencies to demand legislation of Congress. Not content with this, they organized an interstate association, and took up the fight for National legislation. This contest, I would emphasize, was one of the most unselfish ever waged by a body of public men. The commissioners doubtless saw in its successful outcome a division of their field of usefulness, and a lessening of the importance of State work. Political expediency would have prompted them to oppose the passage of a Federal food law, and a part of the country, at least, might have been misled had they taken refuge behind the doctrine of States' rights. But the members of this Association evidently believe, with President Roosevelt, that "States' rights should be preserved when they mean the people's rights, but not when they mean the people's wrongs."

It was the State Food and Dairy Commissioners who, more than any other body of public-spirited men, aroused the country to demand action. It was President Roosevelt, the leader of that aroused public sentiment, who brought about pure-food legislation by galvanizing Congress into action.

The successful fight for the passage of the Pure-Food Bill is now a matter of history, although when one hears Senators and Representatives who exerted secret influence against the measure now engaged in assuming credit for its enactment it must be admitted that certain aspects of the long contest are in dispute. It will be remembered that the Senate, forsaking the traditions of seventeen years, passed the measure in February, 1906. Then it was that the few active friends of this legislation, wearied with the contest and confident of the outcome—had not the House passed a similar bill twice in the last four years?—packed their grips and went home. But the attorneys of those powerful interests arrayed against the bill did not leave Washington. They went quietly to work, and effective work they did. Three months passed, and the House of Representatives had taken no action. It was a triumph for the successful lobbyist who, leaving the argument before committee to his paid experts, spends his time whispering in the ear of Congressmen on the back stairs, cajoling or threatening them into assuming a position opposed to the public welfare.

It is now generally believed that the leaders of the House of Representatives had determined that the Pure-Food Bill should not be brought to a vote, that it should go over to the short session —until after the Congressional elections. True, this serious charge is often denied, but the denials carry little weight in the public mind as against facts such as these:

The final vote on the Pure-Food Bill in the House resulted, 241 yeas and 17 nays. At all times after the Senate acted, there was a large majority of the House in favor of it. Thus, the Speaker and the other members of the Committee on Rules, under their absolute control of the House, could have brought in a rule, at any time, setting a day for a final vote on the Pure-Food Bill. This was done in the case of the Statehood Bill, which was debated about seven hours, and then voted on under a rule which precluded the offering of any amendment. On the other hand, the Pure-Food Bill was allowed to sleep in the House for four months, when it was taken up, debated, and passed in about two days—within one week of the session's end. But for "Executive interference" the bill would have remained, during the summer and fall of 1906, in a state of suspended animation.

Consider it well, for it is truly a remarkable happening in the light of the economic reform which was sweeping the country. After seventeen years the Senate, driven to action by a popular sentiment as strong in the South as in the North, as vigorous in the East as in the West, passed a bill "for preventing the manufacture, sale, or transportation of adulterated or misbranded foods, drugs, medicines, and liquors." Then, under the benign influence of manufacturers whose business was to be affected by such a law, and in obedience to the demands of their paid lobbyists, the leaders of the House, which calls itself the "popular branch" of the National Legislature, determined that the will of the people should be frustrated. Nor was this all. During the peaceful slumber of the people's bill the Committee on Interstate Commerce of the House surrendered to the patent-medicine lobby and adopted an amendment legalizing the use of alcohol as a preservative or a solvent, and, more vicious still, the use of two grains of opium or one-quarter grain of morphine—*without notice to the purchaser.* Had this amendment prevailed in the House, "Peruna" and the "bracers" would have been excluded from the operation of the Pure-Food Law, while baby-killing soothing sirups would have continued to masquerade as "harmless" preparations. Asked to explain this strange action, a frank member of the committee made reply:

"We got tired of being hammered. There were fifteen or twenty representatives of the patent-medicine interest at us. We got tired of hearing them. Finally we gave in. Most of us think it a mistake."

"Finally we gave in!" It was that confession which suggested the idea of the People's Lobby. "Giving in" is too common a characteristic of Congress. The legislative branch of the Government is too much inclined to heed the demands of special interests, turning a deaf ear to the wishes of the people. There must be unmistakable pressure from the country before Congress will act contrary to the dictates of powerful interests. What a hubbub arose before Congressman Wadsworth and the leaders of the House were prevented from drawing the teeth of the Meat-Inspection Bill! Further in point was the fate of the Philippine Tariff Bill, which the combined influence of the President and Secretary Taft could not force out of committee, owing to general indifference to this moderate measure.

Many intelligent persons were led to believe that, with the passage of the Pure-Food Bill, the Meat-Inspection Law, and the Railroad-Rate Bill, the people came into their own, and were to remain henceforth forever sovereign. Not so. True, the special interests had been defeated, but they were by no means routed. Stealthily they assumed their old positions, and another session found them as arrogant as before. Notwithstanding the law giving the Interstate Commerce Commission greater powers, the railroads were as active at the Capitol last session as during its predecessor. Their attorneys throttled the Two-Cent-Fare Bill in committee; killed the proposal making railroads entering Washington amenable to the smoke law of the District of Columbia, and almost succeeded in emasculating the bill to "promote the safety of employees and travellers upon railroads," being defeated by the oscillation of the "big stick." All this is common knowledge at Washington—too well known to enlist the services of even a minor muckraker.

But it is not necessary to go behind the record. This illustration: For some time, as you well know, the Department of Agriculture has been establishing standards for foods. These standards are not mandatory upon the courts; nevertheless, they have been of value in enforcing the Pure-Food Law, and have been adopted by several of the States, thus giving that uniformity of food control which manufacturers ask. When about two-thirds of the foods were standardized, certain interests opposed to food control brought pressure to bear on Congress, with this result: On motion of Representative Crumpacker, of Indiana, the provision authorizing the Secretary of Agriculture to continue this work was eliminated from the Agricultural Appropriation Bill. It was restored by the Committee on Agriculture of the Senate, but was again stricken out on motion of Senator Lodge, of Massachusetts. Before this final action was taken, Senator Proctor, chairman of the Committee on Agriculture, said:

"If anything could convince me that we ought to adopt standards, it would be the nature of the objections that were raised in committee. The representatives of blended whiskey and neutral whiskey were particularly active with a lawyer here."

The lobbyist who was influential enough to put an end to so important a work in the Department of Agriculture needs no introduction to this Association. That such an individual, holding no commission from the people, but acting always contrary to their welfare, should be able to wield such power, is proof enough that his employers have a strong hold on Congress—a hold which is shared by other powerful interests. Anent this pernicious influence, the frank-spoken words of a young member of Congress are particularly in point:

"These special interests . . . never sleep. You may head them off in one place, and away off on the other side they dodge up again. You may throw a stone at one of them and hit it square in the forehead and think it is done for; but, with as many lives as a cat, the first thing you know that special interest pops up again here and there."

It was in the Forty-fourth Congress that these sentiments were uttered by Joseph G. Cannon. Alas, the destroying hand of Time! When, thirty years later, many great interests were plotting injury to the Pure-Food Bill and to the meat-inspection amendment Mr. Cannon's voice was not raised in angry protest. Yet the need for exposure on the floor of the House was more urgent than ever before.

Senator Beveridge, who fought for efficient Federal inspection of meat products, has recently borne fearless testimony to the part played by special interests in moulding National legislation. In view of this predominating influence the Senator from Indiana says: "Surely the great mass of the people, who are neither stockholders in vast capitalistic enterprises, on the one hand, nor members of organic labor, on the other hand, ought to have their lobby. No individual Congressman or Senator should fear the action of the People's Lobby in telling their constituents what they are doing or failing to do in Washington. Only the lazy man or the bad man has anything to fear from such publicity; and both the lazy man and the bad man ought to be out of public life anyhow."

An organization such as the People's Lobby should be judged squarely on its record, and I would tell you of two governmental matters in which it bore an important part. They are of peculiar interest to this Association. At the last session Congress was obliged to demonstrate that it was in earnest when it enacted the Pure-Food Law. An appropriation had to be made to carry the statute into effect, and again those antagonistic to the legislation were afforded an opportunity to work injury to the people's cause. The attack came in the guise of an amendment directing that no part of the appropriation should be paid for "compensation or expenses of any officer or other person employed by any State, county, or municipal government." Now, co-operation between State and Federal officials was the basic idea in the plan adopted by the Department of Agriculture for the enforcement of the Pure-Food Law. Independent action on the part of the National Government would have entailed a delay, perhaps of two or three years, while a force of experts was assembled and organized. It is needless to say that such a period of inactivity would have delighted many manufacturers. Furthermore, inability to co-operate with State officials would have cost the Government many times the sum asked for by the Secretary of Agriculture. According to Representative Mann, floor manager of the Pure-Food Bill in the House, in lieu of $650,000, five million dollars must have been appropriated. Finally, this amendment was a direct insult to the unselfish public men who had done so much to bring about pure-food legislation.

The Tawney amendment was adopted by the House of Representatives, which action followed as a corollary from the four months' delay in the House at the previous session. Having carefully examined the amendment and determined its effect, the People's Lobby issued a statement giving irrefutable arguments why the proposal should not prevail. The amendment was unanimously stricken from the bill by the Committee on Agriculture of the Senate.

Inasmuch as the Pure-Food Law took effect the first of the year, the Executive branch of the Government has been put to the test of demonstrating in what manner this ethical statute is to be enforced. Many questions have arisen for determination by the Bureau of Chemistry and by the Board of Food and Drug Inspection, but none affecting so vitally a powerful special interest as the question relating to the labelling of whiskey and its imitations. It is far from my purpose to enter into a discussion of the ebullient interrogatory, "What is whiskey?" This mooted question has been settled by Executive order at least until the courts rule otherwise.

But let the position of the People's Lobby be thoroughly understood. The organization believes, as the Kentucky Court of Appeals has ruled, "That the selling of whiskey mixed with neutral spirit, under label which might lead the uninitiated to suppose that it was straight whiskey, was a fraud upon the public." Equally to be condemned, in the judgment of the organization, although beyond the jurisdiction of the Department of Agriculture, is the practice of those distillers who advertise that the National Government, under the Bottling-in-Bond Act, guarantees the purity and wholesomeness of straight whiskey so bottled. It is in the strict enforcement of the Pure-Food Law that the People's Lobby is interested; not in the whiskey question *per se.*

Some time before the controversy was determined, the boast was made that the question had been removed "from science into politics." This was true. Remarkably strong political pressure was brought to bear in behalf of the special interest which had done more to defeat pure-food legislation than any other selfish industry. As it seemed possible that this influence might prevail, the People's Lobby took the matter to the President. In a carefully prepared letter attention was directed to the fact that it was a general clause of the Pure-Food Law which was to be construed; and that such a construction as the rectifiers and imitation-whiskey interest demanded would have justified the labelling of a mixture of tea and willow leaves as "blended tea" or a compound of coffee and chicory as "blended coffee." Moreover, it was pointed out that this was the first important decision under the Pure-Food Law, and if the statute was not strictly construed in this case it was likely that there would be a general letting-up in the enforcement of the law. The result is well known. In his admirable opinion, the Attorney-General thus clearly enunciates the true rule of construction:

"The primary purpose of the Pure-Food Law is to protect against fraud, consumers of food or drugs; as an incidental or secondary purpose, it seeks to prevent, or at least discourage, the use of deleterious substances for either purpose; but its first aim is to insure, so far as possible, that the purchaser of an article of food or of a drug shall contain nothing different from what he wishes and intends to buy."

This decision, with the important ruling as to preservatives, means, beyond question, that the Pure-Food Law is to be rigidly enforced by the present Administration. It means that the interests of the consumer are to be considered primarily, and that the demands of selfish manufacturers must yield to the uncompromising construction of the law.

Secretary Allen, of this Association, made a significant observation. "The blind faith which the people in the country districts have in the President," said he, "is truly remarkable. They think that he represents them in everything. Take the Pure-Food Law, for example. It is difficult to get into their heads that State food laws and their administration are necessary, in addition to the National law, to do away with food adulteration. The people would willingly give the President authority to regulate the entire question, if they could do so."

That this "blind faith" is not misplaced is shown by the decision in the matter of the labelling of whiskey, the importance of which is not properly appreciated. It is doubtful if stronger political pressure was ever brought to bear upon the President of the United States than in this matter. He was even told that the political future of those close to his heart was involved in the decision. But once he was sure of his ground he did not hesitate a moment. He determined the question from the standpoint of the consumer, and by this decision the people of the country are assured that *their* law will be construed in *their* interest so long as Theodore Roosevelt is President of the United States.

The greatest assistance in the enforcement of the Pure-Food Law will come from the honest manufacturer. Protected from unjust competition at the hands of those who have battened on the public, the fair-dealing manufacturer will seek the proper advantage which may be derived from a strict adherence to the spirit and letter of the law. That some will follow this course through purely selfish reasons makes no difference. It is never wise to criticize a man's motives when he does the right thing. But even though he does the right thing one may harbor a little impatience when he does it in the wrong way.

A large manufacturer determined, not only to obey the Pure-Food Law, but to put his business on an ethical basis in advance of the law. It was the right thing to do, and he deserves credit for the innovation, notwithstanding he may thus seek to get the best of his competitors. Yet how disappointing it was when he employed a tainted-news bureau to make hisgood intentions known to the country. Unfortunately for this manufacturer, however, *Collier's Weekly* had printed an illuminating article on the type of Washington correspondent, so called, who foists matter paid for by special interests on many newspapers not represented at Washington. It so happened that the news bureau selected by the manufacturer was the very one pilloried in the article. At its head is an intellectual Hessian who once wrote of Dr. Wiley that he "will have a posthumous reputation second only to Ananias." If the manufacturer did not receive the publicity he contracted for, he has only himself to blame. The press had been forewarned.

To give color of respectability and sustenance to these subsidized bureaus is to play into the hands of the real enemies of the

Republic. Time was when bribery of legislators was a common practice. Happily, that period of corruption, save for sporadic cases, has gone by. The next stage was the control of members of the legislature, most often by means of campaign contributions. In the grand moral uplift our country is growing out of this second form of corruption. But there remains another form—in one respect the most dangerous of all, because the most subtle—the tainting of the sources of information of the people. No new art is this, but the tainting of the news is being done to-day on a scale heretofore unknown.

The People's Lobby is a National intelligence-office. Its watchword is publicity, and its purpose is to tell the truth about what transpires at Washington. Armed with truthful information, the people of the country may be trusted to work out their own problems, economical, political, and ethical. That this is so, conservatives as well as radicals must admit; for in his "Vivian Grey" Disraeli wrote words of wisdom:

‘ The people, sir, are not always right.

"The people, Mr. Grey, are not often wrong."

VICE-PRESIDENT LADD: The next topic is "The Preparation of Fruit and Vegetable Products with and without Preservatives," by Mr. Sebastian Mueller, of Pittsburg, Pa.

THE PREPARATION OF FRUIT AND VEGETABLE PRODUCTS WITH AND WITHOUT PRESERVATIVES

By Mr. Sebastian Mueller, Second Vice-President and General Manager of H. J. Heinz Company, Pittsburg, Pa.

The improvement in the quality of commercially packed foods made by the food-preserving industry during the last five years has doubtless been greater than in the preceding twenty years. This progress has been due in no small measure to the work and advanced leadership of your Organization.

Yet, with all of your commendable effort, as an organization and as individuals, in securing the enactment of better laws and by the better enforcement of the laws, I believe that it will be freely admitted that so much good could not have been accomplished in so comparatively short a time without the support and co-operation of those manufacturers of the country who have endeavored to go along with you shoulder to shoulder, each supplementing the work of the other, studying with you your problems and testing your advanced ideas and theories in practical ways, thus furnishing another example of what can be accomplished by united effort.

The presence here of the representatives of the National Government is a gratifying evidence of a still broader harmonious working of the forces behind the great pure-food movement, and with the Nation, the individual State, and the manufacturer all working together for the accomplishment of a single purpose—namely, the absolute purity and wholesomeness of every food product intended for human consumption—we may reasonably hope that the day is not far distant when uniform laws and uniform standards of food purity may be set up and strictly enforced, and when the disquiet and distrust, both at home and abroad, which now affect more or less unfavorably the great commercial-food producing industry of this country, may give place to renewed and better confidence, and when the necessity of the agitation which has caused this disturbance of trade conditions may cease through the removal of the cause by which it was first brought about. Let me warn you, however, gentlemen, that there will be no final settlement of this vexed question until you set your standards at the point of strict purity and keep them there—until in your laws and in your practice you demand and secure the elimination of all chemical preservatives and every harmful, as well as every dishonest, element that now enters or has in the past entered into the composition of prepared foods. No half-way measures can succeed—there will be no peace as long as there is temporizing.

The preservation of food is a question which has confronted people since ancient times. In the old processes of preserving use was made of wood smoke, vinegar, spices, salt, sugar, and drying. Sterilization and cold storage were introduced later and applied where possible and convenient.

When in 1874 Kolbe discovered a method of manufacturing salicylic acid from phenol and carbon dioxide, thereby cheapening this product considerably, a new era in the food-preserving industry was born. Scientists made extensive experiments as to the antiseptic properties of this substance. It was proven beyond a doubt to be an excellent preservative, and Kolbe, after physiological experiments upon himself for an extended period, pronounced it harmless to the human system. Chemists soon brought these facts before the manufacturers and urged them to make use of this new preservative. All of its advantages were pictured in such a conclusive manner that no one could blame the manufacturer for taking advantage of this apparently great scientific achievement. Many food industries were built upon it as a foundation, taking advantage of the simplified methods of preparation and preservation which it made possible. Each year beheld an increase in the consumption of preserved foods, and the use of this chemical preservative, having increased until it had become universal, led what we might term the next generation of scientists to make a further study into its physiological action. The majority of them found it to be detrimental to the digestive secretions, while a few of apparently equal reputation and qualification for this kind of work declared it to be noninjurious in the amounts consumed, and that no harm could result from the consumption of foods so preserved. At that time these men had no conception of the large use that would eventually be made of this preservative. As the evidence of the harmfulness of salicylic acid continued to accumulate, however, manufacturers commenced to believe that, regardless of some favorable opinion, there might be a possibility of injury resulting from the continued use of this preservative in foods.

Benzoic acid and benzoate of soda were then introduced, about ten years ago, to take the place of salicylic acid. The cheapening of the methods of their production from toluene brought them to the front, and they in turn were declared by some scientific men to be perfect preservatives and noninjurious in the quantities necessary to be used. Gradually these new preservatives were attacked until they are now classed by authorities equally as injurious—if not more so—as salicylic acid. To sum up what has been said for and against these preservatives and many others too numerous to mention, we can safely assume that all chemical preservatives are injurious if generally used in food products.

As long as there was not sufficient evidence of the injuriousness of preservatives upon the human system, the manufacturer naturally concluded that he was perfectly justified in using them, but solely for the prevention of putrefaction or fermentation of an article of food which was sound and healthful at the time of its manufacture. The manufacturer was never justified in using a preservative, for the purpose of enabling him to preserve partly spoiled vegetables or fruits, nor was he ever justified in using an artificial preservative for canned goods where sterilization was sufficient to preserve the contents of the package.

I believe it was the duty of every manufacturer, just as soon as serious doubts were raised as to the harmfulness of artificial preservatives, to investigate this matter carefully and to discover if there was a way to get along without them. The manufacture of many articles of food, especially condiments, in the way in which they are prepared for the market at present, probably would never have been undertaken without the aid of these preservatives. Variety upon variety of new food articles were placed on the market long after doubt as to the wholesomeness of chemical preservatives was raised. I doubt if the average manufacturer seriously considered whether it was right or wrong to manufacture those new articles with artificial preservatives. In many cases large industries have been built up, the existence of which, their owners now declare, is threatened if the use of preservatives is prohibited. It is hard to believe sometimes that there are manufacturers who take such a narrow view of this important matter, and expect that the law should, first of all, consider them and their existence, never realizing that the law was not made for the protection of the manufacturer, but for the protection of the consumer. The great majority of food consumers are not informed at all on the subject of preservatives. They cannot decide for themselves whether the small quantities which they may take daily, knowingly or unknowingly, in the foods they eat are harmful or not. In many instances the consumer does not even know what an artificial preservative is.

At a small gathering of ladies some time ago I asked the question if any of them knew what benzoate of soda was. Some of them replied that they thought it was some new soda used for cooking purposes; one or two said they thought it was something that was used in jellies, catsups, and other articles of food to prevent spoilage. They had read that on some of the labels. Others did not know anything about it. When I informed them what had been written and said by scientific men for and against artificial preservatives there was not a single woman in the gathering who was willing to take the chances of using any food put up with them, and I believe that if every consumer of food products was squarely informed as to what has been said for and against preservatives none of them would purchase any article of food which was artificially preserved. Even if there was only a *doubt* about the injuriousness of preservatives, I believe the consumer should have the benefit of that doubt, and that artificial preservatives should be eliminated without exception from all foods for human consumption.

During an eight months' trip in 1906 through some of the European countries, I had an opportunity to study the food laws in different countries and especially those of Germany, France, and England. I studied the food laws from the standpoint of the manufacturer, the standpoint of the consumer, and from the standpoint of the officials whose duty it is to enforce the law. I practically found no advocates of preservatives among reputable manufacturers. I found none at all among consumers, and I was forcibly convinced by evidence submitted by officials who were entrusted with the enforcing of food laws that preservatives should not be tolerated in foods. This does not mean to imply that in those countries unscrupulous manufacturers do not try to use preservatives and adulterants. There are laws against murder and theft as well as other crimes, and yet they are violated every day —and so are the food laws violated in every country. The seriousness of the use of preservatives in food products was forcibly impressed upon me at the Health Department of one prominent European government. I was invited by the officials in charge of the Food Department, in a district with a population of several millions, to visit their headquarters and chemical laboratories, and after a lengthy talk about adulteration and preservatives, one official invited me into his office, where I saw shelf upon shelf of articles of food which apparently had come under the ban of the food law. This official requested me to name any kind of food that I knew to be commercially manufactured and which I thought was free of adulteration or preservatives. Jokingly I remarked that "perhaps they were now using artificial preservatives in potatoes." "That is just what they are doing," replied the official, and he took down from a shelf two jars of potato chips which were bleached and preserved with sulphurous acid. Next he took down rolled oats which were bleached with sulphurous acid to give them a whiter color. Then he pointed out to me rows and rows of all kinds of food products which were more or less adulterated and artificially preserved. I was so impressed with this demonstration of the conditions existing abroad, and, knowing that the conditions in our country were not any better, I was convinced then and there that if artificial preservatives had entered so largely and universally into the manufacture of foods, the restriction of their use was impossible, and the conclusion which I had reached before was then confirmed; namely, that the only solution of this problem was their absolute prohibition.

A few years ago at the National Pure-Food Congress in St. Louis, I said to you that artificial preservatives should be restricted. I say to you to-day that they should be entirely eliminated from any and all foods. They are not necessary. Sour and sweet pickles can be put up and kept without alum or preservatives. Tomato products, mince meat, fruit preserves, fruit butters, fruit jellies, sauces, relishes, and all other products of fruit or vegetable origin can be kept without preservatives. It is true that in some few cases the manufacturer may have to depart from his present way of manufacturing and packing, and when he has done so he will find that he can carry on his business better and with less loss than heretofore. In a few cases he may have to use smaller packages. In other cases he may have to seek a new package. For instance, in place of a stone crock he may have to use a glass bottle or a tin can, lacquered on the inside, which is a most excellent substitute for it, and in many respects possesses distinct advantages of its own. It can be easily sterilized and is not expensive. I assert from personal knowledge that there are no food products made of fruits and vegetables which the manufacturer cannot put on the market without artificial preservatives. Those manufacturers who to-day say that their business will be ruined if preservatives are eliminated will not say so a few years hence. A few years ago some of them held that if coloring-matter was prohibited it would ruin them. All of those men get along without coloring-matter to-day, and I believe that the majority of them would not go back to its use even if it were permitted. The consumer would never have bought a highly colored food if he had known that the color was artificial. The claim is sometimes made that the consumer wants color. Yes, he wants the best he can get, as long as it is natural. As soon as you tell the consumer that it is artificial, and perhaps injurious, he will never purchase the artificially colored food. If you tell the consumer that an article is artificially preserved, and that the general use of such articles will likely injure his health, he will never purchase an artificially preserved article of food. If the Government tolerates the use of preservatives it will mean to the consumer that they are not injurious, as practically all food laws state that no deleterious substance shall be used in foods. The consumer now looks to you for protection.

A few years ago, when the art of food-preserving was less advanced than now, the stand taken was chiefly for the honest label. Even that has never been generally adopted, users of artificial preservatives and makers of compounds having for the most part so obscured statements to that effect on the labels as to make them practically illegible or, through confusion with other matter, meaningless to the average consumer; while experience has taught us that the public, not usually well informed in such matters, is positively misled by the Government guaranty label, which generally overshadows every other label on a food package to-day, except that on which the name of the product itself appears. I believe the time has now arrived when no food product should be eligible to bear a guaranty label, or permitted to pass muster under any law, which is not pure in the strictest sense of the word. The chief objects of my remarks on this occasion are two:

First: To declare from actual experience in our own business the fact that artificial preservatives are unnecessary in condimental foods. I do not presume to speak for all food products, but only for those which I know about and those of our own manufacture, a number of which I have already mentioned. I assure you, gentlemen, that I make this statement in good faith, without reservation, and without fear of successful contradiction. It is doubtless true that, as to a part of the food industry, a few bulk goods may, in a measure, give way to package goods in the cause of purity, and in some cases, perhaps, packages may have to be reduced in size. Without entering into any extended argument on this point, I may say briefly that I do not regard this as an unmixed evil. The elimination of loss to the dealer through spoilage and the freshness and better sanitary condition of the food itself, when bought by the consumer in an original, factory-filled package, will largely offset any disadvantage arising from this change. If there are any foods which the manufacturer cannot make pure and wholesome, let him not make them at all.

Passing for the moment from the question of a high standard of food purity, my second object in coming before you to-day is to urge the importance of a greater degree of uniformity in State legislation and in rulings by State authorities. As I understand it, one of the chief objects of this Organization is to secure a consistent uniformity in all matters affecting this great question. Unity of purpose is evident here; but, gentlemen, unity of purpose is sometimes productive of mischievous results unless it is accompanied by united action. Unfortunately, individuals composing any organization, but who work independently, are rather prone to lose sight of the importance of united action. The food-producing industry has enough trouble at present without adding to it unnecessary burdens, and I confidently believe that no one of you gentlemen is desirous of taking any individual action that will inflict a hardship without a definite corresponding advantage. Yet, among the most vexing problems that the large manufacturer who distributes widely must contend with is the difference in certain requirements of labelling, etc., that exists between different States and between the States and the National Government; and these requirements pertain to relatively unimportant matters. For example, one of our good friends requires that in his State all prepared mustard shall bear a label on which the words "Prepared mustard" appear first, without anything above them; thus omitting the name of the maker from its usual place. In another State the acetic strength of vinegar must be shown upon the label in grains; while in still another, under a similar law, the acetic strength must be shown in percentage. In another State it is now contemplated that prepared mustard shall bear upon the label thereof a distinct statement of all of the ingredients, and the percentage of mustard contained therein—notwithstanding that the food law of that State says very plainly that such a statement will not be required. One State requires the label of each package to show the net weight or measure of its contents, and so forth. If a mild objection is raised to these requirements of special labelling, it is usually met by the suggestion that all products be labelled to comply with the requirements of the single State in question. I am afraid, gentlemen, that unless we get the desired uniformity of action, a compliance with this suggestion would result, in the not distant future, in the sending out of some well-plastered and queer-looking packages, with which the trunk of the returning European tourist would be tame in comparison. One more point which I wish to make in this connection is the real hardship which is placed upon the busy manufacturer by the requirements of extra labels of any kind *on an article that is pure.* If I could impress you, gentlemen, with the great importance of these trivial matters, I believe that you would realize that conditions cannot be made to conform perfectly to the ideal of each individual or of several individuals. I believe that it is the main accomplishment, rather than the small details and technicalities, that you are after. Is it too much, then, to expect that some action will be taken by this Convention looking to the greatest possible degree of uniformity in this direction?

Finally, to return to my main subject, for a brief word before closing. I cannot contemplate with any degree of satisfaction the reactionary opposition which urges concessions upon certain articles in the matter of purity, on the ground that the absolute prohibition of preservatives will injure a great industry. I believe that such a position is entirely untenable, is not to be justified, and cannot be supported by facts. I do not wish to exaggerate dangers in either direction, but through the late Chicago meat agitation that has been going on the minds of the people of the whole world are inflamed. A deplorable prejudice exists against all American food products, and we believe that, instead of injuring the preserving industry by the prohibition of preservatives, this great industry will, on the contrary, be injured by their toleration, through a growing lack of confidence in all prepared foods.

To quote from Attorney-General Bonaparte, "The popular belief of the people is that the primary object of a pure-food act is to give the people pure-food products, and that the intent of the law is not to *discourage,* but absolutely to *prohibit, prevent,* and *punish* the use of deleterious and harmful substances in foods."

VICE-PRESIDENT LADD: The next paper is "The Preparation of Tomato Catsup with and without Preservatives," by Mr. Charles F. Loudon, Terre Haute, Ind. Mr. Loudon is not present, but has sent a paper which the Secretary will read.

THE PREPARATION OF TOMATO CATSUP WITH AND WITHOUT PRESERVATIVES

By Mr. Charles F. Loudon, Terre Haute, Ind.

After a careful consideration of the matter, I have concluded that it is not advisable to attempt a final discussion of the subject assigned to me—The Preparation of Tomato Catsup with and without Preservatives—at the present time, for the reason that the preparation of catsup without preservatives is still in the experimental stage, and also because we are without authentic information as to the effect of the use of foods which contain a minimum quantity of preservative and which are used at infrequent intervals, as catsup is.

In common with other packers in this line, we have been experimenting with a view to producing a catsup free from preservative, that would be of satisfactory flavor and keeping quality; and, while we find that goods so prepared may be sterilized after sealing, so that they will keep until the packages are opened, the results of our experiments so far do not warrant us in saying that the goods will keep sound and sweet (under the ordinary conditions of usage) long enough to be satisfactory to the consumer and long enough to avoid possible risk in their use.

Consumers demand a catsup that is sweet in flavor, and the use of sugar to produce that result means the introduction of a substance that increases the tendency to fermentation when goods are exposed to the air. We have always held that any moist vegetable preparation—especially one in which sugar is used—would ferment and mould on exposure to the air, unless a preservative of some kind is used. We believe this to be a simple chemical problem, and that any practical chemist will confirm this view of the matter. If we are correct in this, it becomes a question of probable *risk to the consumer* who uses goods without preservative.

One of the greatest authorities on internal medication, Dr. Brunton, of London, England, in reply to an inquiry addressed to him by the London *Lancet*, writes as follows: "One must remember that poisons are formed in foods by *spontaneous decomposition* which may take place after purchase. The question to be decided comes to be whether antiseptics are likely to be more injurious to health than the *natural* products of decomposition. My own belief is that preservatives are less injurious." This conclusion seems to us most reasonable, especially as applied to catsup—an article that is used in small quantities and at infrequent intervals, so that the amount of preservative one can consume must necessarily be exceedingly small. We hold that the question of injuriousness of preservative or of any article in foods cannot be determined unless the question of amount and frequency of use is taken into account. We cannot agree with the conclusion reached by Dr. Wiley in his "poison-squad" experiments, from the fact that the published records of these experiments show that the doses of preservative were increased daily until the *limit of toleration* was reached, and the admission is made that in some cases the young men experimented on were made ill by the quantities of preservative given them. It is self-evident that if sufficient preservative were given to make one ill, or even if the amount of preservative administered daily was increased until the limit of toleration was reached, the result could not fail to be injurious; but we cannot see why ill effects obtained by the administration of excess amounts of preservative should be regarded as reasonable ground for condemning the use of such preservatives in small amounts. Would it not be just as reasonable to condemn sugar or salt or alcohol, any one of which will produce sickness if given until (to quote Dr. Wiley's circular on the borax experiment) "the limit of toleration is reached"?

We have on numerous occasions seen catsup which was prepared without preservative served to consumers at hotels and restaurants, in a state of active fermentation, which passed unnoticed owing to the acid character of the goods, and we are positive that such goods cannot fail to be more injurious to people eating them than sound, sweet goods containing a quantity of preservative barely sufficient to prevent fermentation after exposure to the air. The statement has been made by some concerns that their "non-preservative" goods cannot be made to ferment under the severest tests. The fact that goods of this character cannot be made to ferment, we regard as proof positive that an antiferment of some kind is present, and we believe that every practical chemist will agree with us.

We are, however, still experimenting, in the hope of producing a catsup without preservative that will keep a sufficient length of time after opening to be satisfactory to consumers and safe for their use, and we are confident that every reputable packer will be glad to put out such goods if they can be made. Inasmuch as the Secretary of Agriculture has given us time in which to experiment on this matter, we hope to reach a satisfactory result in the coming season's work, but unless we find some way of preparing goods so that they will keep sound and sweet under the ordinary conditions of usage, we feel that the better plan, both from a sanitary and financial point of view, will be to continue the use of a minimum and definitely fixed amount of benzoate of soda, the same to be clearly and distinctly shown by a label on each package, so that consumers may have full notice of the presence of the preservative.

VICE-PRESIDENT LADD: The next paper is "The Preparation and Distribution of Fruit Sirups with and without Preservatives," by Mr. A. G. Richardson, Rochester, N. Y.

THE PREPARATION AND DISTRIBUTION OF FRUIT SIRUPS WITH AND WITHOUT PRESERVATIVES

By Mr. A. G. Richardson, Rochester, N. Y.

The evolution of the soda fountain and the development of its wide-spread popularity has taken place within the memory of most of us here to-day. We can all recall the little box-like soda fountains, with their crude apparatus, which were so common a few years ago and which have not yet passed entirely out of existence. They are a wonderful contrast to the beautiful and elaborate fittings put out by the soda-fountain manufacturers of to-day, many of which are fit for a king's palace and ranging in price from $250 to $25,000 each. The first soda fountains, primitive in their construction, embodied many unsanitary defects, including the use of corrosive metal and faults of construction and design which made it practically impossible to keep them sweet and clean; and, in addition, the almost universal use of extracts and artificial flavors in the preparation of soda-fountain sirups, combined with the lack of knowledge and experience on the part of the dispensers regarding the management of the soda fountains, made it inevitable that the quality of the products served at the soda fountains in earlier days could not be of the highest excellence. The conditions, as already intimated, have changed for the better. No pains or expense is spared to make the modern soda fountain absolutely sanitary. The sirups are kept in closed containers; porcelain, glass, silver plate, and pure block-tin metals are freely used; the sirups do not come in contact with anything which will make them impure, there are no crevices where impurities can be concealed, and in fact the whole construction of the modern soda fountain is such that it can be frequently, quickly, and thoroughly cleansed and sterilized—nothing that ingenuity can suggest has been omitted to accomplish this result.

But by far the most important factor in the evolution and improvement of the products dispensed at the soda fountain has been the origination, development, and adoption by the trade of pure, true fruit flavors, as this has improved the character of soda water and kindred forms of refreshment in themselves, while the improvements in soda-fountain construction have prevented soda-fountain flavors from being contaminated before they were served to the consumer.

The J. Hungerford Smith Company were the pioneers or leaders, so to speak, in the manufacture of concentrated fruit sirups and crushed fruits for soda-fountain use, which is generally conceded to have done more than anything else to elevate the quality of soda water served to the public; therefore, we feel that we can speak with some authority on this subject, especially as our president, who has attained some recognition as an accomplished chemist and a man of the highest integrity, has devoted his life to the study and research concerning such products. I trust you will credit me with a proper feeling of modesty in making these statements, which seem necessary in explanation of my further remarks. And now, for a moment, I will ask your indulgence in a brief personal reference entirely apart from my connection with the J. Hungerford Smith Company.

It is now about twenty-five years since I began my apprenticeship in the drug business, and obtained my first experience in the soda-water business. To obtain better results, and in preference to using extracts for flavoring my fountain sirups, I used to make them from fruit juices, taking 1 quart of fruit juice and adding 3¾ pounds of sugar; this was brought to boiling heat, making about 56 ounces of concentrated, heavy sirup. I diluted this heavy concentrated sirup with equal parts of heavy sugar sirup when it was ready for the fountain. This process made a concentrated sirup which was practically a saturated solution, yet notwithstanding that it had been sterilized by boiling, which incidentally destroyed about 50 per cent of the fresh fruit flavor, and notwithstanding the natural preserving qualities of a heavy sirup, this product would frequently ferment and spoil. During the fifteen years that followed, while I was engaged in the drug business, I continued to make my soda-fountain sirups by the process I have described, being unable to find a better method. Then, about ten years ago, I secured samples of the J. Hungerford Smith Company's line of cold-process fruit sirups, and found by diluting them with three parts of simple sirup that I secured twice as much of the finished product, and quality so much superior to that made from the fruit juice by heating that I adopted them for my fountain, and my business doubled. I may remark here that, while I have managed many soda fountains, I have never failed to increase the business by improving the quality of the soda water; and as a rule this fact is appreciated by the trade, and the majority of dispensers to-day are trying to see how good they can make the soda water they serve, rather than how cheap, because it is to their interest to do so.' During my years of experience as a travelling salesman, calling on the soda-fountain trade, I have seen the business of thousands of dispensers increase enormously by adopting cold-process concentrated sirups. It is true that the popularity of a certain product may be no test of its purity, but soda water must be better in flavor and appearance at least, if it is unusually popular, and there is at least ground for the assumption that it is really purer and better in quality.

I have stated that sterilization destroys at least 50 per cent of the fresh fruit flavor; the use of a minimum quantity of some harmless preservative, like benzoate of soda, enables the manufacturer to put the fruits or fruit sirups up by cold process, preserving in the greatest degree the natural and fresh flavor of the fruit. Now the use of such a preservative, in the infinitely small quantity requisite for the purpose, does not pickle the product as the uninformed may suppose, but merely prevents the inceptive stages of fermentation; the amount is so small that even the strongly pronounced flavor of benzoate of soda cannot be detected in the concentrated product—indeed this is one of the features of benzoate of soda, that if a sufficient quantity were used to have injurious effect upon the human system, it would ruin the flavor of the food product in which it was used, rendering it inedible. As you are doubtless aware, a concentrated sirup for the soda fountain is one which is so strong in flavor that it must be diluted with three to five times its bulk of plain sugar sirup before it is put into the fountain, and this product is again diluted with about five times its bulk of plain or carbonated water before it is served to the consumer, so that the finished beverage would only contain benzoate of soda equal to about 1 part in 4,000—very insignificant, as you no doubt agree. It is because they are subject to such extreme dilution that soda-fountain requisites require a higher percentage of preservative in the original package as compared with canned goods—about $\frac{1}{4}$ of 1 per cent in the former and about $\frac{1}{10}$ of 1 per cent in the latter—and manufacturers are apprehensive as to what would be the result if firms handling such perishable products in immense quantities were to attempt this without preservatives of any kind.

Fruit products are especially liable to decay, fermentation, etc., and it seems indisputable that the danger to public health would be many times increased and multiplied by such a course, for even sterilization is not a reliable means of preservation, even if it did not destroy the flavor, and fruit products so prepared will rapidly spoil after they are opened. It is, of course, well known to you that the handling of fruit products during shipment in varying temperatures and conditions also increases the liability of fermentation. Again, if it were practical to sterilize such goods they must be put up in much smaller packages, greatly increasing the cost and to such an extent as to be prohibitive.

I have been intimately connected with the soda-fountain business for twenty-five years. I have made and handled soda-fountain sirups of every description and have seen them made, but I have never yet seen a satisfactory fruit sirup made by cooking or without a preservative. Our president, Mr. J. Hungerford Smith, was the originator of concentrated true fruit sirups for the soda fountain and has devoted his life to the study of fruit products. I doubt if any man in America has had a better opportunity or is better equipped by training, education, and experience in this particular line. There has been a constant and sincere effort on the part of my firm to produce goods that invariably measured up to the highest standard. In this endeavor we believe we have been successful, and we are ready to submit our goods to any kind of test or comparison alongside of any similar products put up in any other way. We will do this with minds open to conviction, and if any one can show us any method whereby the purity or quality of our products may be improved, we are ready to adopt it. Our convictions are based on personal knowledge and experience, and we only ask as manufacturers that you, gentlemen, as public officials, will not advocate or impose conditions which will restrict or ruin any legitimate business unless your own personal knowledge and experience convinces you that the requirements exacted are reasonable, right, and practicable, and will result in improvement over present conditions and not otherwise.

It is a strange condition that exists when the Government spends thousands of dollars in research and experiment in the interest of agriculture and then spends many thousands of dollars more in the free distribution of such information for the benefit of the farmer, but at the same time imposes restrictions upon the manufacturer who furnishes such a large market to the agriculturist, standing between him and the consumer, serving both, and, to the manufacturer who occupies such an important position in our commercial life as a nation, who has more unstable and fluctuating conditions to contend with than any other line of business that—to him the Government should say, The methods you have evolved through long years of toil and experience, alone, unaided, unadvised, notwithstanding they have stood the test of public approval, notwithstanding they have thus far produced the best results, notwithstanding that it may mean financial loss or ruin, notwithstanding that we can give you no advice, information, or any substitute for your present methods, these must all be discontinued.

Gentlemen, the American manufacturer will adopt any suggestion that will improve his products, but in the name of Justice, tell him *how* he can improve if he must be forced to change. When a manufacturer comes to you with an honest desire to comply with the law, and eager and anxious for some information as to how he can do so and still continue in business—do not shake your head wisely and tell him that he can do without preservatives, that they are unnecessary, and that there is a way to get along without them if he is smart enough to find it. He is trying to be fair with you; meet him half-way—if you know a better way for him, tell him what it is.

It is estimated that there are 125,000 soda fountains in the United States representing an investment on the part of retailers of $50,000,000, with a business of probably $100,000,000 per year. The manufacture of soda fountains, soda-fountain supplies, and kindred products represents an investment of at least $10,000,000, with an annual business of perhaps $50,000,000. These figures are roughly estimated, but will give you an idea of the magnitude of the soda-water business. It furnishes employment to thousands; much can be said in its favor also from a moral as well as an ethical standpoint. Soda water is a temperate drink, it ministers to the comfort and enjoyment of countless millions, it encourages sobriety, and any action which will cut down the sale of such drinks should be well considered.

I have spoken especially of benzoate of soda as a desirable medium for preserving fruit products because it is an actual constituent of many fruits. It is found normally in the human system, it is especially adapted for use in fruit products, and is generally used at the present time. I believe that the claims for benzoate of soda in regard to its effects on the human system will not differ materially from those of common salt, both being normal constituents of the human body. Attention may be called to the fact that the law does not prohibit any harmless preservative; but it is then necessary that there should be a mutual understanding as to what substances will conform to this ruling. The manufacturers and many scientific men believe that the use of benzoate of soda, in such quantities only as are requisite for the purpose referred to, is not only harmless, but beneficial. It has been in general use for years, and I do not know that any one can cite a specific instance where a single person has been injured by it. There are on file records where it has been scientifically administered for years without injurious effects, and while the manufacturers recognize and appreciate the value and soundness of conclusions based on scientific theories, they submit that conclusions which have been determined by actual and practical experience should be accepted as having the greatest weight. The results of such experience are tangible and convincing. Manufacturers, as a class, are not unprincipled; they want to market pure goods and want to know that they are pure; some of them using benzoate of soda, for the personal satisfaction of determining for themselves the harmlessness of this article, have spent thousands of dollars in experiments. We do not say that fruit products cannot be put up by sterilization, but we do say that if put up by such process they will be greatly inferior in quality, appearance, and healthfulness. That they will not be salable to any great extent will be undesirable commercially, and will be a source of greater danger to public health than the properly authorized use of some efficient and harmless preservative like benzoate of soda, the use of which can easily be restricted if desired. I do not wish to be pessimistic, but I sincerely believe that practically to prohibit the reasonable use of preservatives in food products would be a serious blow to our commercial life. The welfare of this country is closely interwoven with the various lines of industrial activity. Any action which will restrict the manufacture of legitimate food products will increase the cost of living; this in turn results in a demand from the laboring classes for higher wages, which increases the cost of production, and so on around the circle; but notice that while all this is going on the market furnished to the agriculturist, the mainstay of this country, which has been greatly enlarged by the manufacturer of food products, is curtailed.

I am informed that some manufacturers of food products have stated that preservatives were unnecessary. It may be true in their own individual cases—there are doubtless some food products which do not require a preservative—but the opinion of a few such manufacturers ought not to govern all the rest. For instance, a California manufacturer of olive oil may not need a preservative, but what authority would he have for saying that a catsup manufacturer would not need it? Right here a little story, clipped from the editorial columns of the New York *Sun*, may not be out of place:

"Untold possibilities lie in catsup bottles since the Pure-Food Law went into effect. One popular brand formerly depended on a small percentage of benzoate of soda to keep it from fermentation. The makers ceased to do this when it became necessary to state the use of preservatives on the label. The catsup now ferments rapidly once the bottle has been opened, and every now and then in restaurants where it is used there comes the sound of a small explosion. It is the catsup bottle in action. In one restaurant of some pretensions on the West Side, a bottle exploded yesterday, drenching two of the guests with the blood-like stuff. Not only that, but the catsup shot up for twenty feet and covered a space a foot or more square on the ceiling. According to the waiter, the explosion was the fourth since the use of benzoate of soda was stopped."

The manufacturers have tried to study this subject impartially, for, apart from the standpoint of public health, they would naturally prefer to eliminate preservatives as an item of expense, but they are convinced it is not wise, practical, or beneficial, and they believe that if you do not now, you will ultimately share their views.

ADDRESS OF MR. E. C. JOHNSON, SECRETARY OF THE NATIONAL ASSOCIATION OF MANUFACTURERS OF FOOD PRODUCTS.

The National Association of Manufacturers of Food Products includes manufacturers of preserves, jellies, jams, mince meat, catsup, cider, pickles, pie fillings, soda-fountain supplies, and table condiments.

As Secretary of this Association, I wish to present two points for your consideration: first, that the great majority of reputable food manufacturers in this country need benzoate of soda in their business, and believe it entirely harmless; and, second, that these manufacturers need your assistance and co-operation in every possible way.

Mr. Mueller's address of yesterday might lead one to think that the majority of manufacturers do not need benzoate. The facts indicate the contrary. Our Association has collected about two hundred letters from the leading food manufacturers all over the country, and only five agree with the position of the Heinz Company. That is to say, 97½ per cent of the food manufacturers are unable to get along without benzoate of soda. Not a single manufacturer in this number has ever heard of any injury being done to man, woman, or child through the use of benzoate, and many manufacturers state that they believe great harm would be done the public if the goods were put upon the market *without* benzoate in them. One hundred and thirty of these replies have been filed with the Secretary of Agriculture at Washington.

My second point is that these manufacturers are so numerous, employ so many people, and use so many products that their interests and problems should merit your assistance and encouragement.

Three years ago, Mr. Frailey, then president of our Association, in addressing your Convention, said that the only difference between us was that you thought that we could make our goods without benzoate of soda, and we knew we could not. The same condition holds true to-day. We *know* that the great majority of food manufacturers are unable to put out certain lines of goods, especially those packed in bulk, without benzoate of soda. Out of 104 who answered the question: "How will your business be affected if benzoate of soda is forbidden?" 50 replied that they would be driven out of business or ruined, and most of the others said they would give up manufacturing those goods in which benzoate was necessary.

A great many people believe that the manufacturers use benzoate because it is cheap and handy, and that all that is necessary to do is to forbid benzoate, and then the manufacturers will simply stop using it, and business will go smoothly on just the same as ever. We do not use benzoate because we want to, but because we have to. We honestly do not know how to make certain articles without it. We do not use it because it is cheap, for it costs several times what our products do. We have experimented constantly in the last few years, in the endeavor to get along without it. One member alone of our Association has spent several thousand dollars in attempting to solve this problem, but all to no purpose. There was once a man who thought that he could teach his horse to live on sawdust, but by the time he had him all taught the horse died. We feel that by the time we get our business educated to do without benzoate we won't have any business.

Not only have we experimented ourselves, but we have done everything in our power to co-operate with the food authorities. Our Association was one of the first in the field to urge the passage of the Pure-Food Law. Some years ago, when Dr. Wiley was seeking an appropriation for his poison squad, members of our Association appeared before Congress in his behalf, and in return we were assured that some way would be found to settle our problems for us. We have sent representatives to the hearings and meetings all over the country, and have discussed our various businesses in the most complete detail, and have done everything in our power to assist in the good work. As yet, the long-looked-for co-operation and assistance has not materialized.

Our position is somewhat like that of a man on trial for his life, who is not permitted to hear the arguments of the other side and refute them. We manufacturers are on trial for our business, and benzoate of soda is being condemned; but we do not know by what methods, nor for what reasons.

In conclusion, let me say that the National Association of Manufacturers of Food Products stands emphatically for honest labelling. We have no desire to use benzoate of soda if it is harmful, no matter how our business may be affected. But we do most emphatically believe that it is harmless; and our business experience substantiates this belief, for none of us ever heard of any injury being done by its use. In view of the great doubt that exists to-day as to its possible harmfulness, we feel that before a step like this is taken, that so vitally affects the interest of such a large number of manufacturers, the whole subject should be entered into, either at the Government's expense or ours, by a specially appointed board of the most eminent authorities in the country.

VICE-PRESIDENT LADD: We will have a paper now which is on the programme for to-morrow morning, but Miss Lakey is here now and she wants to get away to-night; so we will listen to the paper on the "National Consumers' League's Work for Uniform Food Laws," by Miss Alice Lakey, Chairman, Food Investigation Committee, National Consumers' League, Cranford, N. J.

NATIONAL CONSUMERS' LEAGUE'S WORK FOR UNIFORM FOOD LAWS

By Miss ALICE LAKEY, Chairman, Food Committee, National Consumers' League.

MR. PRESIDENT: It affords me great pleasure to represent the Food Committee of the National Consumers' League at this Convention of National and State Food officials. I regard it as an honor to be asked again for a word as to our work. In January, 1907, the Food Committee was re-organized. It now has, in addition to the Executive Board, consisting of the Chairman and Mrs. Florence Kelley, Mrs. Robert McVickar, H. Holbrook Curtis, M.D., James B. Reynolds, Louis L. Seaman, M.D., E. E. Slosson, Ph.D., Champe S. Andrews, counsel, John Martin, secretary and treasurer, an Advisory Board of twenty-four men, mostly food officials, representing seventeen States, and a General Committee of forty-four women, representing thirty-three States. The Committee has outlined a plan of work as follows:

1. To help secure annually the appropriation of a sufficient sum by Congress for the enforcement of the Federal Pure-Food and Meat-Inspection Laws.
2. To help secure the enactment of model and uniform State food laws, and the establishment of adequate food standards and definitions.
3. To help secure the administration of the State laws, and especially the publication in each State of a monthly bulletin showing in detail the work of enforcement.
4. To work specifically to secure a supply of clean, pure milk in every State.
5. To secure sanitary conditions in connection with the manufacture, storage, and sale of all food products.
6. To urge consumers to study labels, and to refuse to buy products condemned by official chemists.

7. To secure the protection of the health and welfare of employees in all establishments for the manufacture of food products.

Which, briefly summarized, means working to aid both National and State officials in their fight for food reform. As an instance, it may be cited that we co-operated with the People's Lobby and the National Health Defence League, and helped to kill the Tawney Amendment to the Agricultural Appropriations Bill. It is a self-evident fact that the Food Law and the Meat-Inspection Law can never be fully enforced until there is in every home an alert, conscientious consumer co-operating in the work of enforcement. To-day one cause of poor food is the average consumer's indifference. Not only is this consumer indifferent to the necessity of clean milk and wholesome meat, but he too often roundly denounces the new food laws as the cause of his increased living expenses. He is apt to overlook the fact that clean milk and wholesome meat mean a lowered death-rate, hence less expense for physicians' fees.

What can be done to rouse this apathetic, indifferent consumer, who cares for nothing unless his pocket-book is affected? When Mr. Dick was asked what should be done with little David Copperfield, he said:

"Wash him."

Let us say of the consumer:

"Educate him."

The farmers and milkmen supplying New York City with milk have been lately passing through a strenuous period of education, owing to the controversy on pasteurized or non-pasteurized milk. Happily the victory was won for clean milk through the efforts of the Milk Committee of New York, and no milk will now be pasteurized unless it is unsafe to use it raw. The City Board of Health has asked for $175,000 to improve the work of inspection. Many consumers of New York have also learned something of the importance of clean milk during this controversy, but to the average consumer clean milk still means "dear milk," and he will continue so to regard it until he is more fully educated.

Four years ago a milk crusade was started in a New-Jersey town. The State Inspector found seven polluted wells supplying local dairies with water; also one herd of tuberculous cattle. The cows were killed, new wells dug. What happened? Did the grateful consumer thank the leaders of the crusade? On the contrary, they were roundly denounced for the increased price of milk. Had the consumers been educated and known that polluted wells may mean typhoid and other ills, they might have been less indignant.

We may now change the pronoun, and say of the consumer that *she* should be instructed how to care for milk after it comes into the home. What good to enforce an ordinance compelling the dairyman to keep his milk at a certain low temperature when the careless consumer leaves it uncovered in a warm kitchen or unchilled ice-box? Why go to the expense of enforcing public ordinances for the care of milk when the average consumer handles it as she would potatoes? The thoughtless consumer appropriates the poor milkman's bottles at all times of the year and uses them for all sorts of things. One thrifty consumer has been known to use the bottles for catsup containers when putting up the autumn tomatoes. Can we not have a defence of the milkman who to-day is paying an increased price for cattle feed and is frequently unable to induce the consumer to allow him an increased price for milk?

Let me suggest to you a simple means of giving this average consumer kindergarten instruction in the care of milk. Let a leaflet be prepared entitled "Ten Milk Commandments," and issued to milkmen for distribution to consumers. The average consumer's education might be helped. The average consumer is not yet awake to the fact that tuberculosis may be conveyed to human beings through both dirty milk and meat that is diseased. At one of the stock-yards in New Jersey, where Federal inspectors are maintained, cattle that are rejected, because tubercular, have been bought by a local dealer, killed, and sold for food. One dealer in this diseased meat sold it in five stalls in a New York market. The active work done by the New Jersey State Board of Health has now closed out his trade.

The speaker recently accompanied the State Inspector of New Jersey on a tour of inspection of certain dairies and slaughter-houses in the State. The places where Federal inspection was maintained, with one exception, were conducted with all due regard for the laws of sanitation. This one exception was a hog slaughtering-place, and the proprietor has been reported by the State Inspector as maintaining a nuisance. As to the dairies, they were with two exceptions horribly dirty. The stables were low, dark, damp places and the cows' feet in one place showed that the animals were never exercised. There is no need of describing these conditions to you. But the consumers would willingly pay for clean milk if once they saw how unclean milk is produced.

This tour of inspection showed up another industry; namely, the fattening of old cows, kept in dark, dirty sheds, on garbage collected from New York hotels. This refuse is cooked in great vats. The fat is skimmed off and sold to the soapman, while the residue is fed to the poor cows. When they are fat enough to be sold they are bought by butchers in New York and Jersey City and sold for food. One cow was found lying in the yard dead. The woman to whom the cow belonged, when asked about her death, said:

"She died this morning from lung trouble. She was all right last night."

Mr. Champe Andrews, counsel for the Committee, is to have this case investigated, as the diseased meat is sold in New York. He has also taken up another case for the Committee, where tuberculous cows, it is reported, have been bought in New York State, and, as they could not be killed there, shipped into New Jersey, there killed, and sent into the New York market.

These facts are nothing new to you, but I have cited them to give force to the appeal to you not only to help educate the consumers as to the importance of clean milk and safe meat, but to indicate to them that they can only be certain of obtaining these necessities by co-operating with you and securing in every State both ante-mortem and post-mortem inspection of all meat, and sanitary inspection for all slaughter-houses in every State.

Mr. George McGuire, State Food Inspector of New Jersey, suggests that local slaughter-houses might be limited to a certain number in each county where State inspection could be maintained.

He also suggests that a State could limit ports of entry for cattle to certain towns where strict inspection could be made of all cattle sent into the State. By this means not only the meat, but the milk supply of the State would be partially safeguarded from the dangers of tuberculosis. Many States are erecting expensive sanatoria where tuberculous patients may be cared for. Why not cut off two channels of infection by excluding diseased animals from the State?

One of the most forcible arguments for rigid inspection of local slaughter-houses is afforded by the Massachusetts Bulletin for September, 1906. Dr. Harrington reports the examining of 190 small slaughter-houses in that State. Where conditions were very bad these places were indicated only by number. Out of the 190 over 120 were so named!

The need of such inspection would seem self-evident, and yet there are but three States in the Union with specific laws for the sanitary inspection of slaughter-houses. These three are Alabama, Michigan, and South Dakota. The District of Columbia has such a law, also Porto Rico. But no other States, according to the laws published in Bulletin 69 of the Department of Agriculture.

An attempt made by the Food Committee to secure a slaughter-house inspection bill for the State of New Jersey has failed. This State has a law that provides only for the inspection of slaughter-houses where horses are slaughtered for food. Bulletin 69 is full of other interesting facts.

Only twenty-eight States have a specific statute prohibiting the sale of diseased meat. In Maryland the law provides that "no person shall kill for human food or shall carry or offer to carry to any butcher or slaughter-house, any animal that is so far disabled by sickness as to be unable to walk.'" While in Virginia, if diseased meat is sold to the consumer without informing him, the seller shall be fined and put in jail. In Iowa the law states that lard made from swine dying of disease must have this fact stated on the cask or other containers. If not sold in a container, the customer must be told the fact. Nearly all the States have laws prohibiting the sale of immature veal, and yet, as you all know, *bob veal* is in every market—sometimes masquerading as *chicken.*

Do these facts not show that every State needs to amend its food laws? Science tells us to-day that tuberculosis may be carried to human beings by means of infected milk and meat. Is this not another argument for increased inspection of cattle? To the objection as to expense, let us for a moment consider a few facts. It is stated that tuberculosis costs this country now $300,000,000 annually, with a death-rate of 1 to 3 for white people and 1 to 2 for negroes. Pennsylvania has just appropriated $1,000,000 to be expended during the next two years in relieving tuberculosis cases among the poor. With preventive measures in full force tuberculosis can be conquered. Will not prevention be cheaper in the end?

Will not this body of State and National officials use its influence to help in prevention by securing State inspection of cattle, slaughter-houses, and meat? Why are so many consumers acceding to the demands of the meat trust by paying increased prices for meat? Because such meat bears the stamp of the Federal inspector, and the consumer has been educated by the public press to believe that such meat is safe. Many consumers refuse all meat not so labelled. Cannot the States give consumers a label on State meat that shall be equally reassuring?

The Food Committee of the National Consumers' League has been asked to submit suggestions for a model food law. The matter was placed in the hands of a committee. They report that they have not yet been able to prepare the draught of a model law. They will do so later. It is evidently only a question of time when the States must adopt uniform laws, not alone for all manufactured foods, but for milk and meat.

The Food Committee of the League is pledged to work for the cause of uniform State food laws, and there is no swifter, surer method of bringing this about than by educating the consumer. Already is he being enlightened as to the danger of using milk from tuberculous cows and meat from diseased animals. When fully educated he will demand protection by the State from the danger of infected food, as he now does from contagious diseases.

Every State should have a separate meat-inspection law, so draughted as to cover slaughter-houses and everything that pertains to the meat business. This separate act could be modelled after the National Meat-Inspection Law.

Mr. George McCabe, solicitor of the Board of Food and Drug Inspection, at Washington, writes as follows:

"From a careful observation of the workings of the National Meat-Inspection Law, I see no reason why it should not be adapted to the needs of the State. One of the most important requirements of a State meat-inspection law, however, I would consider to be a provision for a system of ambulant inspectors, such as they have in Germany."

One of the new plans of the Food Committee is the organizing of a State Food Committee of the Consumers' League of New Jersey. The specific work at first will be directed toward arousing the consumer as to the perils of dirty milk, filthy slaughter-houses, and diseased meat. If the movement succeeds in New Jersey it will be tried in other States.

Do you not think that this aroused consumer will secure the passage and enforcement of a law that failed to pass at the last session of the New Jersey Legislature—namely, a law to provide for slaughter-house inspection?

It is in this way that the Committee hopes to arouse consumers, and it is to you that they look for inspiration and guidance. The one central thought dominating the Food Committee of the National Consumers' League is co-operation with the food officials in their work for food reform, which must include uniform food laws, a work that should begin and end with the consumer.

Whatever the consumers unite in demanding will in time be granted. The pure-food revolution begun by the passage of the Food and Drugs Act will be completed when the consumer is enlightened as to what is in food, under what sanitary conditions the food was produced, and where the food was produced, and where the food was stored and sold.

Lincoln said, "With public sentiment nothing can fail; without it, nothing can succeed." If the food officials of this country will continue their uplifting work for the education of the consumer, they will arouse a public sentiment that nothing can withstand.

Vice-President Ladd: I wish to announce once more that the Committee on Resolutions wishes to have the reports from the sub-committees all in this evening. Dr. Shepard's Committee meets at 7:45 this evening on the veranda.

The next topic is "American Wines and the Pure-Food Law," by Mr. Percy T. Morgan, President, California Wine Association, San Francisco, Cal.

AMERICAN WINES AND THE PURE-FOOD LAW

By Mr. Percy T. Morgan, President, California Wine Association,
San Francisco, Cal.

What is "wine"? This question appears to be agitating grape-growers throughout the civilized world. In France its manifestation is in a refusal to pay taxes and in riotous demonstrations which threaten the very stability of the Government. In nearly all important wine-producing countries the authorities attempt to answer the question by legislative enactment. The American wine-grower is still wondering whether it means the product of fermentation of cane or corn sugar; apple cider colored and flavored; or the fermented product of grape juice.

Authoritative answer to this question is fraught with great consequences to the vineyardist who, after immense struggles with known and unknown diseases, with climatic and soil conditions, has finally arrived at the point where, after five to seven years of unproductive toil, he can grow grapes.

The pure-food laws are ostensibly made for the protection of the consumer. Should they not also react for the benefit of the producer?

Growers of grapes cannot successfully compete with other products which, if the mere alcohol-producing qualities alone are considered, can yield, by fermentation, from twice to three times as much as the same weight of grapes. When, therefore, they see a product sold under the generic designation of "wine," labelled under the pure-food laws in the most bewildering manner, they ask themselves what is "Sweetened sherry grape pomace," "Claret grape pomace," "Claret wine modified," "Sweetened catawba modified," "Corrected claret," "Claret wine, guaranteed under the Pure Food and Drugs Act, containing $\frac{1}{10}$ of 1 per cent benzoate of soda and harmless coloring," "Port type, guaranteed under National Pure-Food and Drugs Act, containing harmless coloring and $\frac{1}{10}$ of 1 per cent benzoate of soda, sweetened with cane sugar and pure saccharin," and such other designations too numerous to mention as are found connected with wine since the National Pure-Food Law went into effect.

Cider, the alcoholic product of the juice of apples, whether or not assisted with added sugar, is not subject to the revenue laws and can, therefore, be sold without license; so we find wine and the fermented product of other materials than apples sold in prohibition States as "cider," and, in other States, we find the fermented product of apples sweetened and colored, masquerading under the guise of "wine."

If the fermented product of other fruits is privileged to be dealt in without Federal or local license, it seems unjust to the producer of fermented grape juice to be placed under such restrictions unless he is, in compensation, afforded protection from the competition of other like beverages containing alcohol derived by fermentation.

So far the Pure-Food Law has not operated to the benefit of the maker of wine exclusively from grapes. This product, in order to comply with the regulations in relation to preservatives or antiferments, must be racked and handled until it will stand clear and remain sound on its own merits, and he meets, in the markets, at prices with which he cannot successfully compete, wines into which (by merely so marking them on the original package) other constituents and preservatives are permitted to enter.

Then, by the operation of the Pure-Food Law in States where uniform legislation has not been enacted, the inhibition of the National Pure-Food Law covers only goods in the original packages; immediately bulk is broken, the product in subsidiary packages can be labelled in any way that the fancy of the distributor may dictate. The most important auxiliary of the Pure-Food Law will be uniform enactments in the States which will automatically give effect to local laws where the authority of the National Government over interstate commerce ceases.

In a recent article in the Chicago *Record-Herald*, Mr. Otto Ericson, president of a large retail grocery house, summed up this question very succinctly as follows:

"The Federal Law represents the deepest wisdom of the present day on this subject. It is a sane, carefully considered, common-sense piece of legislation. If the manufacturing and jobbing interests of the country are to be properly protected, and the best possible results are to be secured by the people, future legislation in all the States should consist only of re-enactment by the State legislatures of the Federal law.

"To be sure, some minor defects have been found, and others probably will be developed, but this would be true of any piece of legislation.

"An advantage of National and State legislation would be that the construction of the law and court decisions bearing thereon, secured by the Federal Government, would be available by, and probably would be taken as the final authority in, the different States. The new National law is a great thing for the American people; let us have the full benefits under it by shaping all State legislation on the same line."

The making of pure wines is one of the simplest processes known; there are no secrets or dark chamber mysteries about it, and those who try to throw such around it are generally "fakers."

In dry wine-making, that is to say, red and white wines of the French, Italian, and German types, the only requisites are cleanliness and watchfulness.

The grapes are crushed and stemmed and conveyed to the fermenting-tanks and, in the case of red wines, allowed to ferment on the skins to draw the color, while white wines are drawn off as soon as the fermentation has proceeded sufficiently to allow a separation of the juice from the pulp.

Temperatures must be carefully watched to guard against either running up to a point where healthy ferments suffer and unhealthy ones develop; or going below a point where healthy activity ceases. Such contingencies are met by mechanically cooling or warming the musts, and in districts where fermentation is difficult or uncertain, selected cultivated wine yeasts are employed.

As soon as the first fermentation ceases the wine is drawn into close tankage where, in the succeeding months, the secondary or final fermentation takes place.

Thereafter, it is merely a question of careful storage, racking, and filling up of the wines until maturity permits of their remaining clear for commercial use.

In sweet wine-making, the grapes are crushed as in dry wine-making; but, in order to preserve the sweetness, the juice is drawn off when fermentation has proceeded to the point desired, and grape spirit is added to arrest further action.

Sherries are made by heating the wine, either by sun or artificial heat, in packages of various capacity, for the requisite period.

Of course, wine-making, like any other operation, needs experience, but, as before stated, the processes are extremely simple. The handling of wine, its storage, racking, tasting and testing, blending and bottling, also need the knowledge of experience, but neither mystery nor secrecy is necessary to the business.

In connection with this paper, I am submitting a table of analyses of typical California wines, copies of which are at the disposal of members of this Convention for their information and future reference. (See pages 289–298.)

The only protection, other than the tariff, which the grape-grower needs is an authentic and authoritative designation of "What is 'wine'?" on similar lines as the question, "What is 'butter'?" has been answered.

The making of excellent wines is not confined to any particular locality in the United States; there is neither West nor East, North nor South, to the American wine industry. It is all one. As excellent wines can be made in New York State as in Reims or Epernay in France; along the Ohio as along the Rhine; in Missouri, Virginia, Florida, or North Carolina as in districts elsewhere; in California as in France, Germany, Italy, Spain, or Portugal.

Given the protection which the pure-food laws are designed to insure, there will be no incentive to adulterate with other substances.

It is true, climatic conditions in the ripening of grapes enter into the question of wine-making in certain districts, but these difficulties, which are now surmounted in the manner most economical, would be otherwise met if the fear of competition of "near" wines did not deter the use of more expensive methods.

In California, the Legislature at a recent session has, by a most simple and direct measure, practically assured the world of the purity of its wines. The enactment in question, known as the Wine Nomenclature Bill, provides that pure wines may be identified by the prefix "Cal" or "Cala" to the name of each wine, and that no wine, under the most drastic penalties of fine and imprisonment, can be so marked unless it is "pure wine, manufactured in this State from the juice of the grape."

This, in conjunction with a general Pure-Food Law, closely following the National law, which was adopted at the same session, enables dealers and consumers by demanding this simple branding of their purchases, to assure themselves of the absolute purity of wines shipped to them from California, under the practical guaranty not alone of the shipper, but of the State itself.

California's wonderful climate, probably unequalled in the civilized world for grape production, makes the manufacture of wine easy and certain, and the great fertility of its vineyards makes the cost so reasonable that there should be neither excuse nor incentive for adulteration.

The only drawback is the distance of California from the consuming centres which makes the transportation of wine very expensive. This disadvantage will be lessened with the completion of the Panama Canal. In anticipation of this, immense wine-storage establishments are being erected on the shore of the Bay of San Francisco, whence wines can be drawn direct into tankage on board ocean-going vessels; thus also minimizing the daily enhancing cost of shipping cooperage.

In the not far distant future, the consumer should be able to procure pure, sound, healthful California wines in every centre at a price little, if any, more than bottled mineral water or beer.

If the same freedom from revenue restrictions and criticisms in the family were allowed to the naturally fermented product of the fruit, *grape,* as is allowed to the alcoholic product of the fruit, *apple,* the grape-growing areas of the United States would be rapidly covered with vineyards, and the industry, which now has a capital engaged of over $100,000,000, might require the resources of a United States Steel Corporation to carry on its business.

Meantime, encouraged by the prospect of protection under the pure-food laws covering correct labelling, grape-growers are turning greater attention to the production of the finer varieties which, while giving a lighter crop than the commoner vines, yield a quality of wine which when properly handled and matured will give American vintages, under distinctive names, in original packages from producer to consumer, as great a vogue as the "Chateau" and "Schloss" and "Champagne" wines of Europe.

There is no industry which has appreciated and looked forward to the benefits to be derived from the application of pure-food and correct-labelling laws more than the American grape and wine-growing industry, which will at all times be found anxious and desirous of co-operating with National and State officials in their endeavors fairly to construe and apply these laws.

DR. SCOVELL: I move we go into executive session.

Motion was seconded and carried.

MISS LAKEY: May I ask the gentlemen to take a copy of the Consumers' League Report, if you please?

July 18th, 4 P.M.

VICE-PRESIDENT LADD: We will now come to order. The Committee on Nominations is ready with its report, and we will now listen to that.

MR. KRACKE: The Committee on Nominations reports as follows:

President, PROF. E. F. LADD, of North Dakota.
First Vice-President, HON. E. W. BURKE, of Wyoming.
Second Vice-President, HON. H. E. SCHUKNECHT, of Illinois.
Third Vice-President, PROF. E. W. MAGRUDER, of Virginia.
Secretary, MR. R. M. ALLEN, of Kentucky.
Treasurer, HON. T. K. BRUNER, of North Carolina.

EXECUTIVE COMMITTEE.

J. Q. EMERY, of Wisconsin.
A. C. BIRD, of Michigan.
F. J. H. KRACKE, of New York.

Gentlemen, inasmuch as the gentleman who has been nominated for President is the Acting President of this Association and the Chairman of this Convention, I move that the report of this Committee on Nominations be accepted.

The motion was seconded and unanimously carried.

MR. KRACKE: Gentlemen, I have the honor to introduce to you our new President, Prof. Ladd, of North Dakota.

PRESIDENT LADD: Gentlemen, I thank you for this honor you have extended to me. I realize that it is one of the highest in the gift of the Association, and I sincerely appreciate the honor you have done me. I thank you very much.

Adjourned until Friday, July 19th, 9 A.M.

Friday, July 19th, 10 A.M.

PRESIDENT LADD: It is now late and we must come to order, gentlemen. We have quite a long programme and there is one paper which is not printed on the programme. Dr. Irion, of Louisiana, wishes to address the Convention.

(Dr. Irion addressed the Convention, and his remarks were subsequently furnished in the form of a pamphlet reprinted on pages 299–339.)

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES

CALIFORNIA PORT WINE	Specific Gravity at 60° F.	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 c.c.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1901													
Fresno	1.0320	16.18	20.40	.97568	8.16	.412	.067	14.56	12.03	2.53	....	....	....
Fresno	1.0311	16.06	20.25	.97683	7.95	.420	.060	14.33	11.91	2.42	....	....	....
Fresno	1.0256	16.11	20.31	.97577	6.61	.435	.068	12.90	10.4	2.50	....	.068	....
Blend	1.0167	15.95	20.10	.97598	4.32	.405	.071	10.53	8.16	2.37	....	....	....
Blend	1.1035	15.23	19.2	.97688	6.08	.412	.049	12.01	9.85	2.16	....	.087	.476
Blend	1.0140	16.77	21.14	.97419	3.60	.337	.056	10.30	7.81	2.49	....	.071	.516
1902													
Stockton	1.0136	16.10	20.30	.97578	3.52	.382	.059	9.36	6.64	2.72	....	.097	....
Stockton	1.0124	16.69	21.16	.97491	3.20	.427	.096	9.96	7.64	2.32	....	....	....
Blend	1.0222	15.47	19.5	.97658	5.76	.390	.079	12.04	10.61	2.43	....	....	....
Fresno	1.0238	17.34	21.85	.97421	6.14	....	....	12.84	.....	.....	....	....	....
Blend	1.0220	15.79	19.90	.97618	5.7	.405	.097	11.86	9.44	2.42	....	....	....
Blend	1.0291	15.59	20.10	.97598	7.50	.370	.049	13.75	11.74	2.31	....	....	....
Blend	1.0313	15.39	19.4	.97668	8.	.405	.062	14.41	.....	....	....	.068	....
Blend	1.0418	16.20	20.42	.97566	10.6	.397	.068	17.14	.....	....	....	....	....
Blend	1.0136	15.71	19.80	.97628	3.50	.390	.055	9.65	.....	....	....	.102	....
Stockton Dry	1.0038	16.34	20.60	.97547	1.10	.345	.042	7.32	4.93	2.39	....	....	....
Fresno	1.0270	16.26	20.5	.97558	7.	.600	.035	13.31	11.20	2.11	.086	.074	....
Fresno	1.0193	15.71	19.08	.97623	5.	.562	.040	11.15	8.90	2.25	.045	.085	....
Fresno	1.0202	16.26	20.5	.97558	5.25	.502	.066	11.55	.....	....	....	....	....
Fresno	1.0118	16.90	21.3	.97477	3.05	.427	.053	9.57	.....	....	....	....	....
Sacramento	1.0232	16.10	20.3	.97578	6.	.432	.034	12.27	.....	....	....	....	....
Sacramento	1.0242	17.04	21.6	.97446	6.25	.405	.046	12.87	.....	....	....	....	....
Sacramento	1.0334	15.71	19.8	.97628	8.5	.307	.031	14.80	.....	....	....	....	....
Blend	1.0116	15.71	19.8	.97628	3.	.352	.047	9.13	6.80	2.33	.054	.096	....
Blend	1.0280	16.18	20.4	.97568	7.25	.412	.058	13.75	11.5	2.25	....	.081	....

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES—*Continued*

CALIFORNIA PORT WINE	Specific Gravity at 60° F.	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 C.C.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1902													
Blend	1.0291	16.18	20.4	.97568	7.5	.432	.035	13.83	.....	....	....	....	.418
Blend	1.0252	16.42	20.7	.97537	6.5	.432	.056	12.9	11.6	2.23	....	1.00	....
Blend	1.0261	16.42	20.7	.97537	6.75	.405	.044	13.13	10.4	2.50	....	....	....
Fresno	1.0280	16.58	20.9	.97517	7.25	.585	.048	13.68	10.9	2.23	....	.052	....
Blend	1.0280	16.10	20.3	.97578	7.25	.358	.035	13.52	.....	....	.061	....	....
Yolo	1.0242	15.58	19.6	.97648	6.25	.427	.065	3.18	11.1	2.42	....	....	....
Yolo	1.0280	16.05	19.	.97708	7.25	.397	.049	3.18	....	....	....	....	....
1903													
Blend	1.0313	15.23	19.2	.97698	8.	.405	.061	14.07	13.90	2.17	.054	.094	....
Blend	1.0280	15.47	19.5	.97658	7.5	.390	.068	13.31	11.1	2.21	.067	.101	....
Blend	1.0197	15.79	19.9	.97618	5.1	.405	.079	11.26	8.90	2.36	....	.074	.442
Blend	1.0136	15.71	19.8	.97628	3.5	.390	.055	9.68	7.3	2.48	....	.088	....
Blend	1.0193	15.63	19.7	.97638	5.	.405	.062	11.10	8.8	2.30	....	.071	....
Blend	1.0313	15.39	19.4	.97668	8.	.352	.048	14.42	11.7	2.44	.087	.014	....
Blend	1.0280	16.03	20.2	.97588	7.5	.370	.049	13.49	.....	....	....	....	....
Blend	1.0261	15.87	20.	.97608	6.75	.412	.082	12.95	.....	....	....	.092	....
Blend	1.0238	15.55	19.6	.97648	6.11	.412	.072	12.19	.....	....	....	....	....
Blend	1.0241	15.95	20.1	.97598	6.2	.382	.070	12.48	.....	....	....	....	....
Blend	1.0303	15.71	19.8	.97628	7.78	.382	.041	13.99	.....	....	....	....	....
Blend	1.0202	15.79	19.9	.97618	5.25	.427	.068	11.39	.....	....	.064	.074	.518
Blend	1.0263	16.58	20.9	.97597	6.81	.405	.065	13.03	10.7	2.33	.038	.076	....
Blend	1.0395	15.61	19.67	.97641	10.04	.382	.060	16.36	14.	2.36	.041	.046	....
Blend	1.0249	15.47	19.5	.97658	6.4	.412	.064	12.51	10.2	2.34	....	....	....
Blend	1.0245	16.10	20.3	.97578	6.32	.382	.061	12.61	....	....	....	0.73	....

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES—*Continued*

CALIFORNIA PORT WINE	Specific Gravity at 60° F.	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 C.C.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1904													
Blend	1.0252	15.55	19.6	.97648	6.5	.345	.076	12.58	10.2	2.38	....	.074	.431
Blend	1.0232	15.47	19.5	.97658	6.	.412	.062	12.06	.....	....	....	.096	....
Blend	1.0402	15.81	19.92	.97636	10.2	.352	.065	16.54	.....	....	....	.078	....
Blend	1.0212	16.33	20.59	.97518	5.5	.450	.055	11.83	9.6	2.23	....	.068	....
Blend	1.0222	16.12	20.32	.97571	5.75	.317	.073	1..04	.....	....	....	....	....
Blend	1.0225	16.54	20.85	.97522	6.5	.420	.080	12.95	10.7	2.25	....	....	....
Blend	1.0313	16.45	20.74	.97533	8.	.390	.046	14.51	12.6	1.91	....	.068	.318
Blend	1.0280	16.08	20.27	.97581	7.25	.420	.068	13.52	11.7	1.82	....	.051	....
Blend	1.0216	16.11	20.31	.97577	5.60	.405	.080	11.86	.....	....	....	....	....
Blend	1.0295	16.19	20.41	.97542	9.6	.420	.078	14.01	.....	....	....	....	....
Blend	1.0244	16.05	20.24	.97586	6.30	.420	.046	12.56	10.1	2.46	....	.125	....
Blend	1.0254	16.12	20.33	.97575	6.54	.390	.067	12.87	.....	....	....	....	....
Blend	1.0291	16.03	20.20	.97588	7.5	.450	.098	13.78	11.6	2.18	....	.058	....
Blend	1.0280	16.12	20.32	.97576	7.25	.352	.078	13.52	.....	....	....	....	....
Blend	1.0313	16.06	20.25	.97583	8.	.412	.068	14.38	.....	....	....	.060	....
1905													
Blend	1.0352	15.79	19.9	.97619	9.	.435	.077	15.29	.....	....	.076	.100	....
Blend	1.0242	16.18	20.40	.97568	6.25	.375	.062	12.56	10.3	2.26	....	.066	.604
Blend	1.0276	15.80	19.91	.97617	7.15	.397	.090	13.51	.....	....	.046	....	....
Blend	1.0274	16.18	20.40	.97568	7.10	.387	.054	13.39	11.3	2.09	.063	.067	....
Blend	1.0318	15.95	20.10	.97598	8.10	.390	.053	15.29	.....	2.4	....	.04	....
Blend	1.0214	16.30	20.55	.97552	5.5	.337	.052	12.14	10.1	....	....	....	....
Blend	1.0272	15.97	20.12	.97596	7.5	.382	.065	13.49	.....	....	.054	....	....
Blend	1.0164	16.18	20.40	.97568	4.25	.375	.062	10.53	.....	....	....	.032	....
Blend	1.0261	15.87	20.06	.97608	6.75	.463	.053	12.95	.....	....	.067	....	....
Blend	1.0291	16.10	20.30	.97578	7.5	.315	.040	13.81	.....	....	....	....	....
Blend	1.0214	16.26	20.5	.97558	5.5	.390	.053	11.86	9.6	2.26	....	.115	.412

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES—*Continued*

CALIFORNIA PORT WINE	Specific Gravity at 60° F.	Alcohol		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	Grams per 100 c.c.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1905													
Blend	1.0218	16.26	20.5	.97558	5.65	.463	.054	11.96	....	....	....	....	....
Blend	1.0252	15.97	20.13	.97596	6.50	.307	.058	12.74	....	....	....	....	....
Blend	1.0214	16.18	20.40	.97568	5.5	.375	.060	11.83	9.6	2.23	.085	....	....
Blend	1.0242	16.22	20.45	.97563	6.25	.322	.053	12.32	....	....	....	.024	....
Blend	1.0282	15.95	20.10	.97598	7.30	.270	.051	13.52	....	....	....	....	....
1906													
Blend	1.0282	16.10	20.30	.97578	7.30	.295	.066	13.57	11.3	2.27	.064	.084	....
Blend	1.0280	15.95	20.10	.97598	7.25	.270	.051	13.47	....	....	....	....	....
Blend	1.0280	16.42	20.70	.97537	7.25	.285	.061	13.62	11.6	2.02	.077	.063	.540
Blend	1.0242	16.18	20.4	.97558	6.25	.220	.056	12.58	10.1	2.21	....	....	....
Blend	1.0282	16.03	20.2	.97588	7.30	.267	.073	13.55	....	....	....	....	....
Blend	1.0252	15.95	20.1	.97598	6.50	.345	.041	12.74	10.5	2.24	.040	.080	....
Blend	1.0242	16.03	20.2	.97588	6.25	.362	.082	12.51	....	....	....	....	....
Blend	1.0222	15.63	19.70	.97638	5.75	.465	.071	11.86	10.7	2.16	.068	.047	.432
Blend	1.0302	15.93	20.07	.97601	7.75	.450	.077	14.08	....	....	....	....	....
Blend	1.0280	15.32	19.31	.97677	7.25	.487	.034	13.26	....	....	.098	.060	....
Blend	1.0202	16.77	21.14	.97493	5.25	.387	.054	11.73	....	....	....	....	....
Blend	1.0242	16.27	20.51	.97557	6.25	.375	.029	12.58	....	....	....	....	....
Blend	1.0252	16.16	20.38	.97566	6.50	.397	.043	12.84	....	....	....	....	....
Blend	1.0261	16.34	20.60	.97547	6.74	.375	.041	13.03	....	....	....	....	....
Blend	1.0261	16.13	20.34	.97574	6.74	.405	.056	13.05	10.8	2.25	.100	....	....
Blend	1.0276	16.00	20.16	.97592	7.15	.420	.048	13.39	11.4	....	....	.091	....
Los Angeles	1.0175	16.79	21.16	.97491	4.52	.064	.064	11.03	....	....	....	....	....
Blend	1.02441	16.53	20.84	.97523	6.29	.420	.055	12.74	....	....	....	....	....
Blend	1.0272	15.82	19.94	.97614	7.04	.382	.046	13.29	11.4	1.89	.077	.088	....
Blend	1.0276	16.16	20.37	.97571	7.15	.360	.042	13.44	....	....	....	....	....

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES—*Continued*

CALIFORNIA ANGELICA	Specific Gravity at 60° F.	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 C.C.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1901													
Finished	1.0414	16.20	20.42	.97566	10.5	.225	.031	17.04	.....	....	....	....	....
Finished	1.0434	15.23	19.20	.97688	11.	.247	.020	17.25	15.91	1.34	....	.057	....
Finished	1.0352	15.69	19.78	.97630	9.	.307	.042	15.27	12.16	....	....	....	....
Finished (dup.)	1.0352	15.69	19.78	.97630	9.	.307	.042	.....	.....	....	....	....	....
Finished	1.0422	15.95	20.10	.97598	10.7	.292	.042	17.17	.....	....	....	.049	....
1902													
Finished	1.0464	15.31	19.30	.97678	11.75	.277	.028	18.06	.....	....	....	....	....
Finished	1.0464	15.31	19.3	.97678	11.75	.322	.041	10.06	.....	....	....	....	....
Winery	1.0404	16.82	21.2	.97487	10.25	.340	.041	16.47	.....	....	....	....	....
Winery	1.0414	17.62	22.2	.97386	10.5	.337	.015	17.77	.....	....	....	....	....
Winery	1.0475	16.74	21.1	.97497	12.	.330	.017	18.82	.....	....	....	....	....
Winery	1.0424	15.98	20.14	.97594	10.75	.300	.049	17.25	.....	....	....	....	....
Finished	1.0404	15.23	19.2	.97688	10.25	.320	.042	16.47	.....	....	....	....	....
1903													
Finished	1.0360	15.69	19.78	.97626	9.20	.307	.042	15.48	14.07	1.41	....	.046	.428
Finished	1.0464	15.31	19.30	.97678	11.75	.227	.028	18.06	.....	....	....	....	....
Finished	1.0485	16.40	20.68	.97539	11.25	.277	.031	18.97	17.52	1.45	....	....	....
1904													
Finished	1.0444	15.15	19.10	.97698	11.25	.392	.036	17.48	.....	....	....	....	....
Finished	1.0434	15.63	19.7	.97638	11.	.285	.025	17.30	.....	....	....	....	....
Finished	1.0440	15.95	20.10	.97598	11.15	.292	.042	17.64	.....	....	....	....	....
Finished	1.0444	15.15	19.10	.97698	11.25	.392	.036	17.48	.....	....	....	.021	....
Finished	1.0434	15.63	19.7	.97638	11.	.285	.025	17.38	.....	....	....	....	....
1905													
Finished	1.0374	15.97	20.12	.97596	9.55	.457	.051	15.92	.....	....	....	.044	....
Finished	1.0383	16.01	20.18	.97590	9.75	.277	.036	16.18	.....	....	....	.037	.388
Finished	1.0464	15.95	20.10	.97598	11.75	.197	.028	18.27	.....	....	.041	....	....
1906													
Finished	1.0343	16.01	20.18	.97590	9.75	.277	.036	16.18	.....	....	....	....	....
Finished	1.0398	16.10	20.3	.97578	10.1	.275	.032	16.60	.....	....	....	....	....
Finished	1.0384	16.16	20.37	.97571	9.78	.392	.036	16.26	.....	....	....	.046	....

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES —*Continued*

SWEET MUSCAT	Specific Gravity at 60° F.	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 C.C.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1901													
Finished	1.0404	15.23	19.20	.97688	10.25	.307	.071	16.36	....	....	....	.047	....
Finished	1.0372	16.03	20.24	.97584	9.50	.330	.044	15.92	....	....	....	....	....
Finished	1.0372	15.83	19.95	.97613	9.50	.322	.031	15.84	....	....	....	....	....
1902													
Finished	1.0485	16.50	20.80	.97527	12.25	.360	.018	19.	....	....	....	.031	....
Finished	1.0372	16.03	20.20	.97588	9.5	.330	.024	15.89	14.51	1.38	....	....	....
Finished	1.0352	15.55	19.06	.97648	9.	.330	.059	15.22	....	....	....	....	....
Finished	1.0372	15.67	19.75	.97633	9.50	.300	.043	15.79	....	....	....	....	....
Finished	1.0414	16.44	20.73	.97535	10.50	.352	.034	17.12	....	....	.038	.052	.488
1903													
Winery	1.0374	16.03	20.20	.97588	9.55	.330	.044	15.94	....	....	....	....	....
Winery	1.0362	15.47	19.5	.97658	9.25	.307	.042	15.45	....	....	....	....	....
Finished	1.0387	16.01	20.17	.97591	9.85	.315	.036	16.28	....	....	....	....	....
1904													
Finished	1.0424	16.03	20.20	.97588	10.75	.247	.053	15.25	....	....	....	....	....
Finished	1.0404	15.89	20.02	.97605	10.25	.277	.054	16.70	....	....	....	....	....
1905													
Finished	1.0372	15.95	20.10	.97598	9.5	.288	.029	15.87	13.95	1.92	....	....	....
Finished	1.0379	16.76	21.12	.97495	9.65	.254	.057	15.80	16.33	....	....	....	....
Finished	1.0405	15.98	20.14	.97594	10.27	.285	.076	16.75	....	....	....	....	....
1906													
Finished	1.0424	16.03	20.2	.97588	10.75	.247	.053	17.25	....	....	....	....	....
Finished	1.0372	16.05	20.20	.97586	9.50	.333	.046	15.89	....	....	....	....	....
Finished	1.0412	16.20	20.38	.97570	10.44	.337	.049	16.99	....	....	.049	.047	....
Finished	1.0362	16.08	20.28	.97580	9.25	.330	.044	15.66	....	....	....	....	....
Winery	1.0343	15.49	19.53	.97651	8.75	.229	.041	14.98	....	....	....	....	....
Winery	1.0383	15.54	19.59	.97649	9.75	.312	.012	16.02	....	....	....	....	....
Winery	1.0442	16.40	20.67	.97540	10.45	.285	.022	17.07	....	....	....	....	....
Winery	1.0370	16.20	20.42	.97566	9.45	.262	.035	15.89	....	....	....	....	....
Winery	1.0442	16.02	20.19	.97589	11.20	.345	.021	17.72	....	....	....	....	....

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES—*Continued*

CALIFORNIA SHERRY	Specific Gravity at 60° F.	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 C.C.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1901													
Finished	1.0044	17.30	21.8	.97426	1.15	.372	.046	7.78	5.9	1.88	....	....	....
Finished	......	16.34	20.6	.97574	....	.412	.114	.....	.....	....	....	.054	....
Finished	......	16.06	20.25	.97583	....	.435	.116	.....	.....	....	....	....	....
Finished	.9973	15.87	20.	.97608	....	.382	.086	5.48	3.8	1.68	....	.062	....
Finished	......	15.95	20.10	.97598	....	.360	.072	.....	.....	....	....	....	....
Finished	......	15.95	20.10	.97598	....	.367	.061	.....	.....	....	....	....	....
1902													
Finished	......	17.16	21.62	.97444	....	.452	.089	.....	.....	....	....	.042	....
Finished	1.0001	16.34	20.6	.97547	.03	.412	.114	6.36	.....	....	....	.076	.590
Finished	......	16.38	20.65	.97542	....	.382	.091	.....	.....	....	....	....	....
Finished	......	15.79	19.90	.97618	....	.352	.084	.....	.....	....	....	....	....
1903													
Finished	.9988	16.10	20.30	.97598	....	.367	.096	5.94	.....	....	....	....	....
Finished	.9983	16.03	20.2	.97588	....	.367	.118	5.79	3.90	1.89	....	.083	.618
Finished	......	16.50	20.8	.97527	....	.382	.094	.....	.....	....	....	....	....
Finished	.9980	15.95	20.1	.97598	....	.412	.079	5.69	.....	....	....	.066	....
Finished	......	15.2	19.2	.97688	....	.442	.098	.....	.....	....	....	....	....
Finished	.9992	16.34	20.6	.97547	....	.420	.076	6.12	.....	....	....	.054	....
1904													
Finished	......	16.42	20.7	.97537	....	.322	.050	.....	.....	....	....	....	....
Finished	.9986	15.79	19.9	.97618	....	.352	.084	5.79	4.	1.79	....	.064	....
Finished	......	15.90	20.4	.97604	....	.382	.086	.....	.....	....	....	....	....
Finished	......	15.87	20.	.97608	....	.405	.100	.....	.....	....	....	....	....
Finished	......	16.22	20.45	.97563	....	.405	.095	.....	.....	....	....	.046	....
Finished	......	16.50	20.8	.97527	....	.420	.090	.....	.....	....	....	....	....
Finished	......	16.27	20.51	.97557	....	.465	.090	.....	.....	....	....	....	....
Finished	.9951	16.01	20.17	.97591	....	.412	.105	4.96	2.70	2.26	....	.071	....
Finished	.9967	16.12	20.34	.97574	....	.337	.072	5.43	.....	....	....	....	....
Finished	......	16.06	20.25	.97583	....	.435	.126	.....	.....	....	....	....	....
Finished	......	15.55	19.6	.97648	....	.300	.074	.....	.....	....	....	....	....
Finished	.9945	15.95	20.1	.97598	....	.352	.100	4.78	2.50	2.28	....	.038	....

ANALYSES OF TYPICAL CALIFORNIA SWEET WINES—*Continued*

CALIFORNIA SHERRY	Specific Gravity at 60° F	ALCOHOL		S. G. of Distillate at 60° F.	Sugar Per cent Balling at 60° F.	GRAMS PER 100 C.C.							
		Grams per 100 c.c.	Per cent by Volume			Total Acid	Volatile Acid	Dry Extract	Reducing Sugar	Sugar Free Extract	Sulph. Acid as K_2SO_4	Tannin	Glycerol
1905													
Finished	......	15.87	20.	.97608	....	.360	.097	.....	.....	....	....	....	....
Finished	......	16.10	20.3	.97578	....	.360	.064	.....	.....	....	....	....	....
Finished	.9981	15.63	19.7	.97638	....	.372	.066	5.61	.....	....	....	....	....
Finished	.9969	16.42	20.7	.97537	....	.345	.072	5.66	.....	....	....	....	....
Finished	1.0010	16.10	20.3	.97578	.25	.345	.077	6.51	4.80	1.71	....	.074	.640
Finished	1.0056	16.26	20.5	.97558	1.45	.323	.078	7.67	.....	....	....	....	....
Finished	......	15.95	20.10	.97598	....	.397	.066	.....	.....	....	....	....	....
Finished	.9982	16.26	20.5	.97558	....	.337	.077	5.84	.....	....	....	.049	....
Finished	1.0048	16.18	20.40	.97568	1.25	.380	.082	7.52	6.10	1.42	....	.057	.588
Finished	......	16.58	20.9	.97517	....	.337	.068	.....	.....	....	....	....	....
Finished	.9943	16.03	20.2	.97588	....	.375	.074	4.75	3.10	1.65	....	....	....
Finished	1.0075	15.79	19.9	.97618	1.95	.360	.073	8.09	.....	....	....	.067	.610
Finished	......	16.26	20.5	.97558	....	.405	.082	.....	.....	....	....	....	....
1906													
Finished	1.0103	16.48	20.77	.97530	2.67	.412	.077	8.53	.....	....	....	....	....
Finished	......	15.95	20.1	.97598	....	.337	.036	.....	.....	....	....	....	....
Finished	.9946	16.90	21.3	.97477	....	.335	.085	5.11	.....	....	....	.043	....
Finished	......	16.26	20.5	.97558	....	.360	.085	.....	.....	....	....	....	....
Finished	.9983	16.26	20.5	.97558	....	.322	.086	5.87	.....	....	....	....	....
Finished	.9978	16.10	20.3	.97538	....	.360	.077	5.69	.....	....	....	....	....
Finished	.9972	16.26	20.5	.97558	....	.322	.086	5.58	3.80	1.78	....	.048	....
Finished	......	16.26	20.5	.97558	....	.300	.073	.....	.....	....	....	....	....
Finished	.9994	16.66	20.1	.97507	....	.360	.088	6.28	.....	....	....	....	....

ANALYSES OF TYPICAL CALIFORNIA WHITE WINES

WINE	Specific Gravity at 60° F.	ALCOHOL		Total Acid	Volatile Acid	Extract	Reducing Sugar	Sulphurous Acid (SO_2)	Tannin	Glycerol	Potassium Bitartrate	Free Tartaric Acid
		By Volume	Grams per 100 c.c.									
1905												
Riesling	.99147	11.46	9.08	.570	.097	1.92	.082	.0045	.028	.682	.331	.009
Hock	.99098	11.41	9.04	.562	.092	1.84	.088	.0064	.031	.705	.282	.024
Riesling	.99110	11.53	9.15	.600	.096	1.83	.054	.0026	.026	.800	.214	.086
Dry Sauterne	.99457	12.30	9.76	.600	.095	2.72	.776	.0119	.028	....	.345	.035
Sweet Sauterne	1.0035	12.77	10.13	.540	.118	5.28	.385	.0285	.031	....	.310	Trace
Sweet Sauterne	1.0012	12.33	9.79	.540	.120	4.14	.227	.0250	.023	.680	.310	Trace
Hock	.99050	10.63	8.43	.570	.096	1.81	.100	.0064	.028	.605	.282	.029
Hock	.99111	10.56	8.37	.591	.090	1.82	.096	.0028	.034	....	.327	.033
Riesling	.99188	12.14	9.63	.480	.081	1.90	.090	.0063	....	.760	.233	.011
1906												
Hock	.99101	11.67	9.26	.510	.081	1.78	.115	.0032	.021	.788	.259	.015
Hock	.99167	11.84	9.39	.495	.069	1.80	.055	.0028	.031	....	.388	None
Riesling	.99190	11.48	9.12	.562	.098	1.98	.078	.0046	.030	.740	.330	.030
Riesling	.99202	11.94	9.47	.585	.101	1.94	.095	.0083	....	.740	.253	.015
Hock	.99069	11.42	9.06	.570	.109	1.77	.063	.0045	.028	.680	.263	.026
Sweet Sauterne	1.00399	12.7	9.76	.530	.086	5.27	.337	.0298	....	....	....	....

ANALYSES OF TYPICAL CALIFORNIA RED WINES

WINE	Specific Gravity at 60° F.	ALCOHOL		Total Acid	Volatile Acid	Extract	Reducing Sugar	Sulphurous Acid (SO_2)	Tannin	Glycerol	Potassium Bitartrate	Free Tartaric Acid
		By Volume	Grams per 100 c.c.									
1905												
Claret	.99397	12.35	9.96	.705	.100	2.63	.120	.....	....	.802	.366	Trace
Claret	.99395	12.14	9.78	.637	.108	2.67	.135	.....	.109	.780	....	....
Claret	.99400	11.84	9.54	.660	.113	2.35	.110	.....	.076	....	....	....
Claret	......	11.78	9.49	.615	.091	2.29	.130	.....	.117	.766	....	....
Cabernet	.99477	12.34	9.95	.667	.084	2.70	.160	.....	.122	....	.340	Trace
Burgundy	.99410	12.37	9.98	.705	.102	2.60	.127	.....	.119	....	....	....
Zinfandel	.99433	12.13	9.77	.727	.119	2.54	.135	.....	.074	.870	.301	....
Zinfandel	.99383	12.11	9.76	.615	.102	2.38	.120	.....	.086	.766	....	....
Zinfandel	.99363	12.00	9.67	.592	.102	2.40	.095	.....	.109	.739	....	....
1906												
Zinfandel	.99416	11.66	9.40	.637	.088	2.33	.125	.....	.109	.746	....	....
Claret	......	11.72	9.45	.600	.121	2.34	.117	.....	.082	.692	....	....
Zinfandel	.99367	12.19	9.82	.630	.096	2.45	.107	.....	.111	.806	....	....
Burgundy	.99421	11.67	9.41	.637	.096	2.37	.107	.....	.140	.700	....	....
Cabernet	.99369	12.02	9.69	.597	.103	2.45	.090	.....	.115	.759	....	....
Claret	.99333	11.93	9.61	.637	.091	2.33	.137	.....	.088	.688	....	....
Burgundy	.99466	11.61	9.36	.645	.110	2.52	.122	.....	.102	.888	....	....

THE EFFECT ON THE HUMAN SYSTEM OF LOUISIANA-MANUFACTURED SIRUPS AND MOLASSES

By Dr. C H. Irion, President, Louisiana State Board of Health, New Orleans.

Both sirups and molasses have been manufactured for over a hundred years, and for that length of time have been used as articles of food. In the early days of the industry these products were regarded as delicacies, but as their production became greater they have assumed the position of staple food products, not only for man, but for the domestic animals. With the invention of new machinery and with the introduction of chemical methods the processes of manufacture have changed, with the result that the quality of sirups, sugars, and molasses has been improved and the quantity increased.

From years of observation and experience it was believed that the effects, on both man and beast, of this class of food, even when used in large quantities, were beneficial. Only of late the question of the evil effects of sulphur as sulphites has arisen.

Mr. D. D. Colcock, secretary of the Louisiana Sugar and Rice Exchange, who has for years championed the cause of the sugar industry in Louisiana, first proposed the scientific investigation of the effects on the human system of feeding sirups and molasses containing sulphur as sulphites.

The object of this experiment was carefully to determine the effects of these sirups and molasses when fed in normal quantities in connection with normal diet.

With the idea of formulating definite plans for the work, a conference was held between Mr. Henry McCall, president of the Louisiana Sugar Planters' Association, and Mr. R. E. Blouin, assistant director of the Louisiana Sugar Experiment Station. At this conference it was decided to invite the aid and co-operation of the Board of Health of the State of Louisiana, which board is entrusted with the enforcement of the State pure-food laws.

Dr. C. H. Irion, president of the Board of Health, after having been consulted, offered to have these experiments conducted under the auspices of the Board, and appointed Dr. P. E. Archinard as the representative of the Board in charge of the medical and bacteriological investigations. Mr. R. E. Blouin was appointed in general charge of the feeding and chemical investigations.

The U. S. Department of Agriculture was also invited to cooperate in this work, but due to pressure of other work it was impossible to send a representative to New Orleans.

The expenses of these experiments, exclusive of the salaries of the attaches of the Sugar Experiment Station, were met by the Louisiana Sugar Planters' Association and the Louisiana Sugar and Rice Exchange. The members of these two organizations showed keen interest in these experiments and rendered much valuable assistance and encouragement by their frequent visits and observations. This is especially true of Messrs. McCall and Colcock, and of Mr. J. C. Murphy, president of the Sugar Exchange, and of Mr. Reginald Dykers, secretary of the Planters' Association.

SELECTION OF SUBJECTS.

It was decided to select as subjects for feeding twelve negroes from among those having short sentences in the Parish Prison. This selection was for three reasons:

1. The well-known fondness of such persons for this class of food;

2. Such subjects' entire ignorance of sulphites and their supposed effects on the human system;

3. The absolute control under which the subjects could be placed.

The methods of administering the sirups and molasses, and the kinds of sirups to be used, were explained to the prospective subjects; then volunteers were asked for. Willing subjects were in abundance, and from these were selected the average types, who then underwent the necessary physical examination before being finally selected. It is to be understood that in choosing these subjects no attempt was made to obtain athletic or robust specimens, but simply to get those whose physical condition was normal.

Table I. gives a brief description of the subjects selected.

It will be seen from this table that all the offences of the subjects were of a minor character, and are such as those for which a majority of negroes have at one time or another been punished.

QUARTERS OCCUPIED BY SUBJECTS.

Immediately after their selection in the Parish Prison, the subjects were transferred to the House of Detention, where they were quartered during the entire experiment. This particular place was selected so that the subjects might be kept together and at the same time be separated from the rest of the prisoners.

The room occupied was on the second floor and was fifty feet long by fifteen feet wide. The west side of the room was fitted with six large windows; the opposite side, opening into one of the main corridors, was made entirely of iron bars. One end was a solid brick wall, while the other gave access to a lavatory fitted with the usual sanitary appliances. On the opposite side of the corridor was a room similar to the one occupied by the subjects.

The bunks were made of iron piping with upper and lower tiers, and so arranged that the bedding could be rolled up and strapped to the wall, thus leaving more available space during the day.

Each subject was assigned his own bunk and given the requisite bedding, which, on stated days, he was required to wash.

Each morning the cement floor, frames of the bunks, etc., were scoured, and the whole room thoroughly cleaned.

Sunlight and ventilation were ample, and the weather was such that at no time was it necessary to use the steam radiators with which the building is equipped.

The building is regularly disinfected with a volatile spray in order to minimize the transmission of any contagious disease which might be brought in, and further precautions along this line were deemed unnecessary.

The quarters occupied, then, while not elaborate, were of sufficient size, well lighted and ventilated, and at all times scrupulously clean.

WORK AND EXERCISE REQUIRED.

As an examination of Table I. will show, the subjects were accustomed to physical labor, so it was deemed wise to require of each an amount of work commensurate with that usually done.

After rising at 5 A.M., the squad was required to scour that wing of the building of which their quarters were a part. Some two to two and a half hours were consumed at this work.

Breakfast was eaten at 8 o'clock.

From 9 until 12 the squad was in the yard, during which time they were required to do such work as piling lumber, crushing brick, and washing their clothes and bedding.

From 12 to 1 the squad was allowed to rest, and at 1 o'clock dinner was on the table. At 2:30 on four days of the week three of the subjects were taken to physician's laboratory, where they underwent the medical examinations later tabulated.

The remaining nine subjects were employed at odd jobs around the place from 2:30 to 4. On the two week days when no one was taken away for examination, the squad was employed from 2:30 to 4 on the brick pile.

At 4 o'clock they were allowed to rest half an hour, when their temperatures were taken, after which each one had a cold shower bath.

On Sundays after breakfast the squad was allowed to attend the religious services held in the building. After mass was said they were given the freedom of the yard, and generally employed the time in playing baseball or some other athletic game.

On Sunday afternoons they were again allowed to go into the yard and to remain until 4 o'clock.

At 5 o'clock supper was eaten.

TABLE I.—DESCRIPTION OF SUBJECTS.

Number	Color	Home	Occupation	Charge	Length of Sentence	Age	Height	Weight in pounds	CHEST		Girth of Abdomen	Deformity
									* Insp.	† Exp.		
									In.	In.	In.	
1	Black	Buras, La.	Steamboat Roustabout	P. Larceny	6 mos	28	5 ft. 11 in.	159	42	36	33	None
2	"	Jonesville, La.	" "	Dang. & Susp.	29 days	44	5 ft. 5½ in.	153	43	37	36	"
3	"	St. Bernard Ph.	Porter	P. Larceny	6 mos.	19	5 ft. 7½ in.	124	35	31	29½	"
4	Mulatto	New Orleans, La.	Carpenter's Helper	P. Larceny	4 mos	19	5 ft. 10 in.	130	38	33	32	"
5	Black	Natchez, Miss.	Longshoreman	P. Larceny	60 days	26	6 ft. 2 in.	203	46	40	40	"
6	"	St. Louis, Mo.	Cook	Dang. & Susp.	29 days	24	6 ft. 5 in.	183	36	34	37½	
7	Mulatto	Providence, R. I	Cook	Dist. Peace	30 days	40	5 ft. 5 in.	149	42	39½	40	"
8	"	New Orleans, La	Helper in Garage	D. S. & P. L.	4 mos	24	5 ft. 7½ in	141	37	32	34	"
9	Black	Houma, La.	Plantation Laborer	P. Larceny	6 mos	22	5 ft. 6 in.	126½	41	37	35	"
10	"	Tennille, Ga.	Fireman	D. S. & C. C. W.	90 days	21	5 ft. 5 in.	128	37	33	31	"
11	"	New Orleans, La	Ditcher	Assault int. kill.	9 mos	25	5 ft. 8 in.	140	37	32	31	"
12	"	New Orleans, La	Driver	P. Larceny	60 days	19	5 ft. 4½ in.	129	37	33	34	"

* Insp. stands for Inspiration.

† Exp. stands for Expiration.

After supper they were returned to their quarters and allowed to dispose of their time to suit themselves. Daily papers, stationery, and playing-cards were at their disposal, so that the time did not pass slowly.

The hour for retiring was 9 P.M., though they were given the privilege of retiring earlier.

CONTROL.

The squad was, of course, subject to the general regulations of the prison, though in several important particulars these rules were modified to suit the special case. Four deputy sheriffs were employed to have constant surveillance of the squad, two sheriffs being on duty during the day and two at night.

A representative of the Sugar Experiment Station was present at every meal, and was charged with the general care of the subjects. He was also present the greater part of the day, and paid occasional visits at night.

It was attempted to make the daily routine conform as closely as possible to the ordinary conditions of living met in the class of subjects under observation, with such additional sanitary and hygienic measures as seemed expedient.

Every liberty possible was given the subjects, yet no opportunity to abuse these liberties was allowed. It was necessary to observe certain rules of discipline, infractions of which were punishable by confinement in the "dungeon." This dungeon was simply an isolated dark room where the culprit was kept in solitary confinement for a few hours. In those instances where the term of confinement included a meal hour the subject was allowed to come to the table and eat with his fellows.

Instances where punishment was necessary were rare, and every case was caused by disagreement between subjects who became engaged in arguments.

Friends of the subjects were allowed to visit them, but were not permitted to bring articles of food or drink. The control of the subjects was such, then, that it was impossible for any of them to vary from the prescribed course. These limitations, however, were not galling, and that their treatment was conducive to contentment was evidenced by the fact that three subjects whose prison terms expired before the termination of the experiment voluntarily remained until its close.

PSYCHIC INFLUENCE.

The prospective subjects before being selected were simply told that it was desired to test sirups and molasses. The method of administering the sirups and molasses was carefully explained, as well as the fact that these sirups and molasses were those to which they had long been accustomed.

When the sirup-feeding period began, the squad as a unit attacked the sirups and molasses with a faith born of experience, and continued eating these articles in surprisingly large quantities and with great regularity during the entire three weeks. No subject anticipated harmful results, none thought of himself a martyr to the cause of science, but rather regarded himself as fortunate. There was no tendency to mental depression, and consequent induced physical collapse, by constantly recurring thoughts of poison. Not only was there no nausea induced by the food, but, on the contrary, the palatability of these products was such as to create a keen appetite, and more than one subject requested a continuance of molasses after it had been stricken from the bill of fare.

There was no feeling of a duty in eating the sirup and molasses, as each subject thoroughly understood that he was to eat his only as his appetite demanded.

Even at the risk of repetition, it cannot be too strongly emphasized that the idea of poison, drugs, preservatives, and the like was foreign to the conditions of this experiment, and hence could exert no influence on the subject's state of mind.

It is also to be again noted that the prison surroundings were not such as to create dissatisfaction, and no trouble whatever was experienced in the management of any one of the squad.

DIET.

It was attempted to give the subjects clean, wholesome food of the same general character as that to which they had been accustomed, and to vary the bill of fare from day to day.

A separate dining-room was secured and a special cook employed. The food was selected with the care necessary to insure its purity and freshness, and was prepared and cooked under the personal direction of the Sugar Experiment Station's representative. No canned goods were employed, all the meats, vegetables, etc., being those of the season and as fresh as could be procured. Of the food placed on the table each subject was allowed to eat as he chose, there being no prescribed amounts of any article to be consumed, nor was any one required to eat all the dishes placed before him. It is safe, then, to say that no artificial conditions were created, but that the food consumed was that which would have been eaten normally. All detrimental and unnatural factors that could be foreseen were eliminated, so that should harm result it could be laid directly to the sulphites in the sirup and molasses.

The twelve subjects were divided into three squads of four each, and each squad was fed on one kind of sirup or molasses during Periods II, III, and IV.

Squad I, consisting of subjects 1, 2, 3, and 4, were fed during Periods II, III and IV on genuine cane sirup. The contents of sulphur as sulphites in this sirup was 405 milligrams per kilogram, or four one-hundredths of 1 per cent.

Squad II (Nos. 5, 6, 7, 8) were fed during the same periods on genuine open-kettle molasses. At the beginning of and during Period II this molasses contained 161 milligrams per kilogram of sulphur as sulphites. At the end of Period II sodium sulphite was added to this molasses in quantity sufficient to raise the content of sulphur as sulphites to 502 milligrams per kilo, and this was fed during Periods III and IV.

Squad III (Nos. 9, 10, 11, 12) were fed during Periods II, III, and IV on first molasses from the vacuum process. This molasses contained 928 milligrams per kilo of sulphur as sulphites, and, as an examination of its more complete analysis will show, was of approximately the same composition as that of a second molasses produced in an average year.

Each subject was provided with a glass-stoppered sirup pitcher, which was put at his place at the table at each meal during the three weeks designated as Periods II, III, and IV. The amounts of sirup and molasses eaten were determined by weighing the pitchers before and after each meal.

The bill of fare for every meal during the experiment is given in Table II:

TABLE II.—BILL OF FARE, EXCLUSIVE OF SIRUPS, ETC.

PERIOD I.

April 25—*Breakfast,* stewed beef, bread, butter, tea. *Dinner,* soup, chicken, beans, butter. *Supper,* bread, butter, tea.

April 26—*Breakfast,* veal stew, potatoes, grits, bread, butter, tea. *Dinner,* soup, roast beef, boiled potatoes, boiled cabbage, bread, butter. *Supper,* bread, butter, tea.

April 27—*Breakfast,* stewed meat, fried potatoes, grits, coffee, bread, butter. *Dinner,* soup, pork chops, mashed potatoes, beans, bread, butter. *Supper,* bread, butter, tea.

April 28—*Breakfast,* bacon, eggs, grits, bread, butter, coffee. *Dinner,* soup, roast beef, boiled cabbage, beans, bread, butter. *Supper,* bread, butter, tea.

April 29—*Breakfast,* pork chops, grits, bread, butter, coffee. *Dinner,* soup, broiled steak, mustard greens, corn bread, sweet potatoes, butter. *Supper,* bread, butter, tea.

April 30—*Breakfast,* fried bacon, grits, eggs, bread, butter, coffee. *Dinner,* soup, chicken, rice, potatoes, bread, butter. *Supper,* bread, butter, tea.

May 1—*Breakfast,* ham, fried potatoes, bread, butter, coffee. *Dinner,* soup, roast beef, rice, sweet potatoes, corn bread, butter. *Supper,* bread, butter, tea.

PERIOD II.

May 2—*Breakfast,* stewed beef, fried potatoes, batter cakes, butter, coffee. *Dinner,* soup, steak, mashed potatoes, beans, biscuit, butter. *Supper,* batter cakes, butter, tea.

May 3—*Breakfast*, bacon, eggs, corn cakes, butter, coffee. *Dinner*, soup, stewed meat, mustard greens, corn bread, boiled potatoes, butter. *Supper*, bread, butter, tea.

May 4—*Breakfast*, stewed meat, batter cakes, bread, butter, coffee. *Dinner*, soup, roast beef, boiled potatoes, beans, biscuit, butter. *Supper*, corn bread, butter, tea.

May 5—*Breakfast*, ham, pancakes, bread, butter, coffee. *Dinner*, soup, salt meat, cabbage, bread, butter. *Supper*, biscuit, butter, tea.

May 6—*Breakfast*, pork chops, batter cakes, butter, coffee. *Dinner*, soup, chicken, rice, corn bread, butter. *Supper*, bread, butter, tea.

May 7—*Breakfast*, hash, biscuit, butter, coffee. *Dinner*, soup, boiled beef, cabbage, bread, butter. *Supper*, batter cakes, butter, tea.

May 8—*Breakfast*, meat stew, pancakes, butter, coffee. *Dinner*, soup, roast beef, mashed potatoes, bread, butter. *Supper*, corn cakes, butter, tea.

PERIOD III.

May 9—*Breakfast*, bacon, corn bread, butter, coffee. *Dinner*, soup, stewed beef, corn bread, boiled potatoes, butter. *Supper*, batter cakes, tea, butter.

May 10—*Breakfast*, meat stew, batter cakes, bread, butter, coffee. *Dinner*, soup, roast beef, beans, biscuit, butter. *Supper*, corn bread, batter cakes, tea, butter.

May 11—*Breakfast*, ham, batter cakes, bread, butter, coffee. *Dinner*, soup, fried fish, rice, bread, butter. *Supper*, biscuit, butter, tea.

May 12—*Breakfast*, pork chops, batter cakes, bread, butter coffee. *Dinner*, soup, chicken, rice, corn bread, butter. *Supper*, batter cakes, butter, tea.

May 13—*Breakfast*, hash, biscuit, butter, coffee. *Dinner*, soup, stewed beef, cabbage, bread, butter. *Supper*, batter cakes, tea, butter.

May 14—*Breakfast*, bacon, batter cakes, butter, coffee. *Din-*

ner, soup, meat stew, mustard greens, corn bread, butter. *Supper,* bread, biscuit, butter, tea.

May 15—*Breakfast,* batter cakes, bread, butter, coffee. *Dinner,* roast beef, mashed potatoes, beans, corn bread, butter. *Supper,* biscuit, bread, butter, tea.

PERIOD IV.

May 16—*Breakfast,* meat stew, batter cakes, bread, butter, coffee. *Dinner,* steak, fried potatoes, cabbage, corn bread, butter. *Supper,* biscuit, bread, butter, tea.

May 17—*Breakfast,* bacon, eggs, biscuit, butter, coffee. *Dinner,* roast pork, mashed potatoes, rice, bread, butter. *Supper,* batter cakes, bread, butter, tea.

May 18—*Breakfast,* bread, biscuit, butter, coffee. *Dinner,* soup, roast beef, beans, corn bread, butter. *Supper,* batter cakes, bread, butter, tea.

May 19—*Breakfast,* pork chops, biscuit, butter, coffee. *Dinner,* soup, chicken, cabbage, boiled potatoes, bread, butter. *Supper,* batter cakes, bread, butter, tea.

May 20—*Breakfast,* fried liver, biscuit, grits, butter, coffee. *Dinner,* roast pork, rice, mashed potatoes, corn bread, butter. *Supper,* batter cakes, bread, butter, tea.

May 21—*Breakfast,* batter cakes, bread, butter, coffee. *Dinner,* soup, roast pork, mashed potatoes, mustard greens, corn bread, butter. *Supper,* biscuit, bread, butter, tea.

May 22—*Breakfast,* batter cakes, bread, butter, coffee. *Dinner,* soup, meat stew, cabbage, beans, corn bread, butter. *Supper,* biscuit, bread, butter, tea.

PERIOD V.

May 23—*Breakfast,* bacon, eggs, grits, bread, butter, coffee. *Dinner,* soup, roast beef, mashed potatoes, rice, corn bread, butter. *Supper,* bread, biscuit, butter, tea.

May 24—*Breakfast,* pork chops, fried potatoes, bread, butter, coffee. *Dinner,* roast pork, boiled potatoes, cabbage, bread, butter. *Supper,* bread, butter, tea.

May 25—*Breakfast*, liver, fried potatoes, bread, butter, coffee. *Dinner*, soup, steak, rice, sweet potatoes, bread, butter. *Supper*, corn bread, bread, butter, tea.

May 26—*Breakfast*, bacon, fried potatoes, biscuit, bread, butter, coffee. *Dinner*, soup, chicken, rice, bread, butter. *Supper*, biscuit, bread, butter, tea.

May 27—*Breakfast*, bacon, batter cakes, bread, butter, coffee. *Dinner*, soup, roast beef, cabbage, mashed potatoes, corn bread, butter. *Supper*, biscuit, bread, butter, tea.

May 28—*Breakfast*, eggs, grits, biscuit, butter, coffee. *Dinner*, soup, roast pork, rice, cabbage, bread, butter. *Supper*, corn bread, bread, butter, tea.

May 29—*Breakfast*, pork chops, grits, biscuit, butter, coffee. *Dinner*, roast beef, cabbage, rice, corn bread. butter.

Table III gives the amounts of sirup and molasses consumed at each meal, totals for each day, totals for each weekly period, totals consumed at each of the three meals, totals consumed by each subject, and each subject's meal average and daily average:

TABLE III.—MOLASSES CONSUMED, IN GRAMS.

Ninety grams of sirup or molasses is considered as the average amount that would be consumed in one day by an ordinary person. From Table III it is seen that the lowest average daily consumption of any one of the squad is higher than this 90 grams, while in several cases this amount is more than tripled.

Table IV gives in milligrams the daily consumption of sulphur as sulphites, the total consumption of the subjects, and the daily average consumptions. These last two are calculated to parts of an ounce avoirdupois and tabulated in the columns so headed.

TABLE III.—MOLASSES CONSUMED, IN GRAMS.

Number		2	3	4	5	6	7	8	Period Total	9	10	11	12	13	14	15	Period Total	16	17	18	19	20	21	22	Period Total	Grand Total	Average
1	Breakfast..	74	60	93	80	62	63	80	512	100	60	...	85	78	35	115	473	50	50	45	35	50	110	50	390	1375	65
	Dinner....	53	67	97	75	78	93	135	598	90	35	...	113	48	50	55	391	50	50	75	35	25	35	45	315	1304	62
	Supper....	91	85	100	90	50	88	107	611	90	...	127	140	150	97	110	712	120	75	95	100	105	70	105	670	1993	95
	Total....	218	212	290	245	190	244	322	1721	280	95	127	338	276	180	280	1576	220	175	215	170	180	215	200	1375	4672	222
2	Breakfast..	118	55	45	103	75	68	80	544	70	50	90	75	62	70	95	512	88	100	35	50	85	105	100	563	1619	77
	Dinner....	102	45	92	23	70	137	85	554	68	40	85	135	73	35	110	546	63	130	90	45	65	35	40	468	1568	75
	Supper....	35	88	110	42	70	55	105	505	115	...	137	32	65	80	115	544	117	120	85	85	105	115	105	732	1781	85
	Total....	255	188	247	168	215	260	275	1603	253	90	312	242	200	185	320	1602	268	350	210	180	255	255	245	1763	4968	237
3	Breakfast..	135	88	66	119	131	86	110	735	175	95	...	110	107	80	115	682	95	55	75	55	115	90	75	560	1977	94
	Dinner....	126	71	80	109	130	135	175	526	188	95	...	55	90	55	10	493	50	45	...	35	...	...	40	170	1489	71
	Supper....	80	118	106	126	90	125	140	785	190	...	38	105	175	95	165	768	110	145	115	...	80	35	90	575	2128	101
	Total....	341	277	252	354	351	346	425	2346	553	190	38	270	372	230	290	1943	255	245	190	90	195	125	205	1305	5594	266
4	Breakfast..	149	135	135	110	125	125	175	954	225	115	...	88	212	85	103	828	120	115	60	100	55	275	...	725	2507	119
	Dinner....	102	128	126	...	133	130	195	814	...	35	70	134	127	270	150	786	65	260	75	45	210	270	...	925	2525	120
	Supper....	142	130	174	124	132	183	185	1070	220	...	147	114	185	150	120	936	240	240	265	220	305	280	265	1815	3821	182
	Total....	393	393	435	234	390	438	555	2838	445	150	217	336	524	505	373	2550	435	615	400	365	570	825	265	3465	8853	421
5	Breakfast..	113	29	...	39	115	58	35	389	185	90	140	125	68	70	...	678	80	...	35	150	...	165	...	430	1497	71
	Dinner....	106	90	18	15	28	65	117	439	78	45	35	36	...	70	185	449	...	50	95	55	145	...	...	345	1233	59
	Supper....	106	109	38	61	108	100	...	522	40	...	200	149	140	...	80	609	100	...	120	85	115	25	15	460	1591	76
	Total....	325	228	56	115	251	223	152	1350	303	135	375	310	208	140	265	1736	180	50	250	290	260	190	15	1235	4321	206
6	Breakfast..	141	...	109	107	105	119	140	721	212	175	...	135	188	85	155	950	115	133	80	135	100	90	80	733	2404	115
	Dinner....	45	...	105	...	...	...	89	239	137	173	...	...	...	95	50	455	...	130	45	...	75	...	...	250	944	45
	Supper....	119	135	110	111	130	116	160	881	140	...	217	185	110	135	135	922	155	95	85	140	135	130	70	810	2613	124
	Total....	305	135	324	218	235	235	389	1841	489	348	217	320	298	315	340	2327	270	358	210	275	310	220	150	1793	5961	234

TABLE III.—MOLASSES CONSUMED, IN GRAMS (*Continued*).

Number		2	3	4	5	6	7	8	Period Total	9	10	11	12	13	14	15	Period Total	16	17	18	19	20	21	22	Period Total	Grand Total	Average
7	Breakfast..	50	49	...	33	42	90	65	329	80	135	...	72	85	25	60	457	130	100	60	80	...	...	50	420	1206	57
	Dinner....	30	44	14	7	15	18	33	161	42	105	50	70	...	20	...	287	...	25	...	...	...	...	40	65	513	24
	Supper....	87	73	52	47	87	70	113	529	120	...	160	108	75	95	115	673	85	60	160	60	115	80	55	615	1817	87
	Total....	167	166	66	87	144	178	211	1019	242	240	210	250	160	140	175	1417	215	185	220	140	115	80	145	1100	3536	168
8	Breakfast..	85	21	91	67	95	127	77	563	33	165	...	151	168	45	90	652	35	100	65	65	85	235	25	630	1845	88
	Dinner....	73	70	72	23	50	75	142	505	68	130	...	60	70	35	30	393	...	...	...	...	...	...	45	45	943	45
	Supper....	25	97	107	110	105	150	85	679	147	...	156	75	85	170	85	718	95	80	75	90	155	285	35	815	2212	105
	Total....	183	188	270	200	250	352	304	1747	248	295	156	286	323	250	205	1763	130	180	140	155	240	520	105	1490	5000	238
9	Breakfast..	108	115	111	123	112	125	170	864	129	195	200	31	21	65	25	666	143	30	...	35	...	260	275	743	2273	108
	Dinner....	37	125	98	...	105	115	135	615	175	90	75	...	...	80	...	420	...	...	...	...	...	260	220	480	1515	72
	Supper....	101	113	110	115	118	147	150	854	185	30	230	136	60	...	65	706	55	255	245	75	265	265	265	1425	2985	142
	Total....	246	353	319	238	335	377	455	2233	489	315	505	167	81	145	90	1792	198	285	245	110	265	785	780	2648	6773	322
10	Breakfast..	60	...	40	59	129	67	72	427	80	95	...	70	50	75	...	370	70	20	40	45	20	35	...	230	1027	49
	Dinner....	63	13	26	28	17	45	50	242	138	45	...	33	...	...	...	216	...	30	...	...	...	...	...	30	488	23
	Supper....	79	34	54	45	48	110	55	425	97	...	76	...	55	...	55	283	60	55	70	20	65	...	30	300	1008	48
	Total....	202	47	120	132	194	222	177	1094	315	140	76	103	105	75	55	869	130	105	110	65	85	35	30	560	2523	120
11	Breakfast..	129	...	97	96	89	33	25	469	...	...	55	87	29	70	125	366	175	85	55	85	...	105	80	585	1420	67
	Dinner....	51	26	66	...	...	110	117	370	...	...	150	...	...	...	...	150	...	...	...	...	...	...	...	...	520	25
	Supper....	45	102	104	90	110	...	70	572	125	...	93	...	70	70	65	423	110	135	35	75	175	95	25	650	1594	76
	Total....	225	128	267	186	199	143	212	1360	125	...	298	87	99	140	190	939	285	220	90	160	175	200	105	1235	3534	168
12	Breakfast..	62	...	57	32	95	40	32	318	40	25	90	65	40	90	45	395	50	50	50	40	...	15	25	230	943	45
	Dinner....	36	...	62	25	42	28	62	255	...	10	130	...	65	85	20	310	...	...	...	...	40	...	20	60	625	30
	Supper....	59	36	51	85	90	73	143	537	95	65	76	62	85	85	50	518	105	105	65	25	...	...	25	325	1380	65
	Total....	157	36	170	142	227	141	237	1110	135	100	296	127	190	260	115	1223	155	155	115	65	40	15	70	615	2948	140

TABLE IV.—DAILY CONSUMPTION OF SULPHUR AS SULPHITES, IN MILLIGRAMS.

May.

Number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	Daily ave	Total in parts of an ounce avoirdupois	Average per day in parts of an ounce avoirdupois
1	88	86	117	99	77	99	130	113	38	51	137	112	73	113	89	71	87	69	73	87	81	1892	90	0.0668	0.0032
2	103	76	100	68	87	105	151	102	36	126	98	81	75	130	109	142	85	73	103	103	99	2012	96	0.0710	0.0034
3	138	112	102	143	143	140	172	224	77	15	109	151	93	117	103	99	77	36	79	51	83	2266	108	0.0800	0.0038
4	159	159	176	95	158	177	225	180	61	88	136	212	205	151	172	249	162	148	231	334	107	3585	171	0.1266	0.0060
5	52	37	9	19	40	36	24	152	68	188	156	104	70	133	90	25	126	146	131	95	8	2169	103	0.0766	0.0036
6	49	22	52	35	38	38	63	245	175	109	161	150	158	171	136	180	105	138	156	110	75	2992	143	0.1056	0.0050
7	27	27	11	14	23	29	34	121	120	105	126	80	70	88	108	93	110	70	58	40	73	1775	84	0.0627	0.0030
8	29	30	43	32	40	57	49	124	148	78	144	162	126	103	75	90	70	78	120	261	53	2510	120	0.0886	0.0042
9	228	328	296	221	311	358	422	454	292	469	155	75	135	84	184	264	227	102	246	728	705	6285	299	0.2219	0.0106
10	187	44	111	122	180	206	164	292	130	71	96	97	70	51	121	97	102	60	79	32	28	2341	111	0.0826	0.0039
11	209	119	248	173	185	133	197	116	...	276	81	92	130	176	264	204	84	148	162	186	97	3280	156	0.1157	0.0055
12	146	333	158	132	211	131	220	125	93	275	118	167	141	107	144	144	107	60	37	139	65	2736	130	0.0966	0.0046

HISTORY AND DEVELOPMENT OF THE LOUISIANA SUGAR INDUSTRY.

The first crop of cane manufactured into sugar on a commercial scale was made by Etienne de Boré in 1795, on the same ground now occupied by the Sugar Experiment Station. This crop sold for $12,000. The development of this industry has been such that now the annual production of raw sugar approaches 400,000 short tons. Assuming that our juice is of average quality and that three sugars are made, we should have an annual production of 25,000,000 gallons of final molasses. As, however, in many instances, only two sugars are made, and in rare cases only one sugar, the annual production of sirups, first, second, and third molasses approximates 30,000,000 gallons.

De Boré crushed his cane with a horse mill, feeding single stalks into the mill, and evaporating the juice so obtained in a kettle over an open fire. The steam engine was first introduced in 1822 and rapidly replaced horse-power for driving the mills.

The first vacuum pan was introduced in 1830, and this really marked the beginning of the present-day processes, and since then the advances have been very rapid.

The filter was introduced in 1840, and in the same year coal was first used as a fuel.

In 1846 the "double-pressure" mill was first introduced and was found very materially to increase the amount of juice expressed from the cane, and to furnish bagasse in a state suitable for fertilizing purposes.

The centrifugal was introduced in 1852, and about this time bagasse was successfully used as fuel.

Norbert Rillieux originated the multiple effect, which was an immediate success, and this process of evaporating cane juice is now in general use.

CLARIFICATION OF THE JUICE.

In addition to the sugars occurring in cane juice are gums, acids, albuminoids, mineral salts, etc. The amount of these substances present varies directly with the pressure employed in extracting the juice from the cane, though the kind of cane, season, maturity, etc., also influence the amount of these substances found in the juice. With the light pressures employed in the old horse mills but little of these substances were extracted. With the evolution of the crushing-apparatus there has been a constant increase in the amount of impurities extracted, until now an average Louisiana juice contains from 1½ to 3 per cent of these objectionable substances. Heat alone will remove a small portion of the gums and albuminoids, but allows practically all acids to remain. These acids exert a very great inverting action on the sucrose, changing it into invert sugar. By adding lime to the juice before heating, more of the impurities are removed than by the action of heat alone, though the greater portion of the gums still remain. Should the lime be added to, alkalinity is found to attack the glucose and to form gummy acids which are more objectionable than the impurities removed. If, however, sulphur dioxid is passed into the juice, a large part of the gums, wax, etc., are removed. By next adding lime to the sulphured juice till neutrality is reached phosphates, sulphates, etc., acids, albuminoids, etc., are removed in maximum quantities and the resulting juice is purer than that obtained by the other methods of clarification. Consequently it is possible to crystallize more sugar from our juice and to obtain a superior quality of molasses.

It is then seen that it is not only expedient, but necessary, to add both sulphur dioxid (or sulphur fumes) and lime to the juice in the process of clarification; that the effects of these substances are not to injure the quality or lower the purity of the products, but, on the contrary, to facilitate the production of superior foodstuffs. The sulphur fumes are never added as a preservative, or as a disguise of inferiority, but as an essential means of obtaining pure and palatable products.

PROCESSES OF MANUFACTURE.

Before going further it is well to understand the difference between sirup and molasses.

A sirup is the juice of sugar cane concentrated by evaporation without the removal of any sugars. This evaporation is generally carried on till the sirup contains 30 per cent water and 70 per cent solid matter.

Substances other than the sugars are removed in greater or less degree, depending on the details of manufacture. When the concentration of cane juice is carried sufficiently far sugar crystallizes. The sugar is separated from the liquid, and this liquid is known as molasses. By further evaporation sugar may be crystallized a second, and even a third time. Then the resulting liquid is called second or third molasses, as the case may be. It has not yet been found possible to crystallize all the sugar from the juice, and a third molasses has generally 80 per cent solid matter, 20 per cent water, and 60 per cent of total sugars.

There are many variations in the general process of making sirups, sugars, and molasses, though the principal ones may be classed under three heads:

I. SIRUPS ALONE—OPEN-KETTLE PROCESS.

This method is usually employed in the smaller factories, and here the juice, after its extraction by three, five, or six roller mills, is strained, then sulphured and limed. Heat is then applied to complete the clarification. The precipitated impurities are next removed by settling or filtering or by a combination of settling and filtering. The clarified juice is then concentrated by evaporation in open pans until it reaches the desired density.

II. OPEN-KETTLE SIRUPS, SUGARS, AND MOLASSES.

The sirup is obtained as in Process I. An additional evaporator (termed a strike pan) is used, in which the sirup is evaporated to the granulation-point. The liquid is now run into coolers, and the sugar crystals allowed to form. The sugar is removed either by draining off the molasses or by means of the centrifugal.

III. SIRUPS, SUGARS, AND MOLASSES—VACUUM PROCESS.

The clarification of the juice is the same as in Process I, and in some small houses the process of evaporation to sirup is the same. The larger and more modern plants evaporate the juice in multiple vacuum effects. The sirup is evaporated to the granulation-point in another single-vacuum pan. The sugar is separated out by means of the centrifugal. The molasses so obtained is called vacuum molasses.

These methods are, of course, very general, as details were deemed unnecessary. The first two processes are but little used, by far the greater portion of the juice being worked by the modern vacuum process.

CHEMICAL COMPOSITIONS.

The table (V) taken from Bulletin No. 91 of the Louisiana stations, gives the yields and compositions of the products from an average juice when worked by the vacuum process.

The sirups and molasses eaten by the subjects were analyzed at the Sugar Experiment Station by Dr. F. Zerban and Mr. H. P. Agee. It was deemed wise to make two analyses of the open-kettle molasses fed to Squad II, in order to note any effects which the addition of sodium sulphite might have had on this molasses.

TABLE V.

(Yields and Compositions of Sugar House Products from an Average Juice.)

	Pounds	Total Solids	Sucrose	Dextrose	Levulose	Ash	Albuminoids	Amids, etc.	Acids, Gums, etc.
Cane	1,000,000	.....	.....	.....	.....	....	....	....	....
Raw Juice	750,000	15.00	12.00	1.00	0.70	0.45	0.10	0.10	0.65
Sulphured Juice	750,000	14.80	12.00	1.00	0.70	0.40	0.02	0.10	0.58
Clarified Juice	750,000	14.70	12.00	1.00	0.70	0.45	0.03	0.10	0.42
Sirup	220,588	50.00	40.80	3.20	2.58	1.50	0.09	0.33	1.50
First Masse Cuite	122,550	90.00	73.44	5.70	2.70	2.70	0.13	0.63	2.70
First Sugar	54,000	98.75	96.00	0.80	0.70	0.80	0.01	0.05	0.39
First Molasses	71,213	80.00	53.60	8.76	8.00	4.00	0.20	0.94	4.50
Second Masse Cuite	63,300	90.00	60.30	9.43	9.43	4.50	0.21	1.08	5.05
Second Sugar	24,000	95.50	85.00	2.90	3.10	2.50	0.06	0.34	1.60
Second Molasses	42,563	80.00	41.70	12.20	12.50	5.35	0.25	1.50	6.50
Third Masse Cuite	37,833	90.00	46.90	13.30	14.50	6.00	0.26	1.70	7.34
Third Sugar	10,000	94.00	80.00	3.80	4.20	3.50	0.07	0.43	2.00
Third Molasses	30,750	80.00	31.70	15.00	16.50	6.30	0.38	2.00	8.20

Table VI gives these analyses:

TABLE VI.

COMPOSITION OF SIRUPS AND MOLASSES FED TO SUBJECTS

	Sirup	O. K. Molasses, first week	O. K. Molasses, second and third weeks	Vacuum-process Molasses
	Per cent	Per cent	Per cent	Per cent
Total Solids	69.7500	76.4600	76.3900	73.3400
Sucrose	53.1200	39.8300	39.6100	44.1500
Dextrose	5.9900	13.8600	14.2300	7.2400
Levulose	6.6100	15.2200	15.0900	8.6400
Ash	2.1440	3.2180	3.3000	5.4180
Sulphur as Sulphites (S)	0.0405	0.0161	0.0502	0.0928
Sulphur as Sulphates (S)	0.0690	0.0580	0.0790	0.1123
Total Sulphur (S)	0.2400	0.2740	0.3230	0.4350
Free Acids (as malic)	0.4190	0.7270	0.6560	0.6160
Combined Acids (as malic)	1.3020	2.2370	2.2110	4.7600
Gums	0.8440	0.9050	0.9880	2.9190
Total Nitrogen (N)	0.0860	0.1010	0.0820	0.2150
Nitrogen as Albuminoids	0.0120	0.0260	0.0120	0.0390
Nitrogen other than Albuminoids	0.0740	0.0750	0.0700	0.1760
Water	30.2500	23.5400	23.6100	26.6600

The method of determining the sulphur as sulphites was as follows:

Twenty grams of the sample was weighed out and diluted to 350 to 400 cubic centimetres, an excess of phosphoric acid added, and 200 cubic centimetres distilled into bromine water. The bromine was boiled off, hydrochloric acid was added, and sulphur precipitated as barium sulphate.

A series of experiments conducted at the Sugar Experiment Station has failed to show any *free sulphurous* acid in Louisiana molasses, and has established the fact that even in raw juices and unsulphured cane products there is volatile sulphur which is estimated as sulphite sulphur in the usual methods for determining this substance. A sample of raw juice taken immediately after crushing showed 15.66° Brix, 3 milligrams per kilo of volatile sulphur, and 45 milligrams per kilo of total sulphur. Demerara No. 74 cane grown on the Experiment Station was crushed in the laboratory mill, giving a juice of 15° Brix. This juice was evaporated to a sirup of 70° Brix, which sirup was found to contain 11 milligrams per kilo of volatile sulphur, when treated by the method given for the determination of sulphites. This sirup also contained 1,629 milligrams per kilo of total sulphur.

The nature of these volatile sulphur compounds has not yet been determined, though it has been found that hydrogen sulphide forms a part of this volatile sulphur.

MEDICAL EXAMINATION AND SUPERVISION.

The physician in charge, or one of his assistants, paid occasional visits to the squad and gave advice and suggestions relative to the work in hand. Once during each weekly period each subject was taken to the laboratory of the State Board of Health, where he was examined by Dr. P. E. Archinard and his assistants, Drs. J. J. Archinard and E. O. Trahan. This examination consisted in a general physical inspection, and in taking blood samples for counting the different corpuscles, and for hæmoglobin test.

Tables VII to XVIII, taken from Dr. Archinard's report made to the Board of Health, give the data concerning the blood.

TABLE VII.

SPECIAL BLOOD EXAMINATION, CASE NO. 1,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	5,012,000	8,600	95%	63	22	14	1
II. May 2 May 9.....	4,984,000	9,600	95%	64	21	12	3
III. May 9 May 15.....	4,992,000	8,200	95%	66	22	11	1
IV. May 16 May 22.....	5,008,000	8,000	100%	63	23	13	1
V. May 23 May 29.....	5,052,000	7,920	100%	69	20	11	0

TABLE VIII.

SPECIAL BLOOD EXAMINATION, CASE NO. 2,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1	4,850,000	6,302	95%	62	20	12	4
II. May 2 May 9	4,960,000	6,220	95%	64	22	13	1
III. May 9 May 15	4,968,000	6,420	100%	64	24	11	1
IV. May 16 May 22	5,020,000	6,520	100%	62	25	12	1
V. May 23 May 29	5,088,000	7,100	100%	66	23	11	0

TABLE IX.

SPECIAL BLOOD EXAMINATION, CASE NO. 3,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	3,560,000	8,800	85%	64	20	13	3
II. May 2 May 9.....	3,888,000	8,300	85%	66	21	11	2
III. May 9 May 15.....	4,288,000	8,380	90%	63	25	12	0
IV. May 16 May 22.....	4,512,000	8,250	90%	70	20	10	0
V. May 23 May 29.....	4,592,000	8,120	95%	67	23	9	1

TABLE X.

SPECIAL BLOOD EXAMINATION, CASE NO. 4,

DURING THE FIVE PERIODS.

This examination consists in count or red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	4,192,000	9,200	95%	62	20	13	1
II. May 2 May 9.....	4,448,000	6,400	100%	60	21	12	0
III. May 9 May 15.....	4,596,000	6,420	100%	64	22	14	0
IV. May 15 May 22.....	4,604,000	6,600	100%	63	20	12	1
V. May 23 May 29.....	4,656,000	6,400	100%	71	19	10	0

TABLE XI.

SPECIAL BLOOD EXAMINATION, CASE NO. 5,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	5,060,000	8,400	95%	63	26	10	1
II. May 2 May 9.....	5,136,000	8,000	100%	62	28	10	0
III. May 9 May 15.....	5,204,000	8,200	100%	62	27	10	1
IV. May 16 May 22.....	5,226,000	8,240	100%	65	27	8	0
V. May 23 May 29.....	5,252,000	8,160	100%	62	26	10	2

TABLE XII.

SPECIAL BLOOD EXAMINATION, CASE NO. 6,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	3,960,000	10,240	85%	67	20	13	3
II. May 2 May 9.....	4,472,000	9,780	85%	62	26	11	1
III. May 9 May 15.....	4,560,000	8,840	90%	62	21	11	6
IV. May 16 May 22.....	4,604,000	8,600	90%	65	25	10	0
V. May 23 May 29.....	4,656,000	8,400	95%	66	26	8	0

TABLE XIII.

SPECIAL BLOOD EXAMINATION, CASE NO. 7,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimeter	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	4,960,000	7,600	90%	70	16	12	2
II. May 22 May 9.....	5,072,000	8,000	95%	65	22	12	1
III. May 9 May 15.....	5,088,000	7,820	95%	66	21	12	1
IV. May 16 May 22.....	5,124,000	7,440	95%	66	24	9	1
V. May 23 May 29.....	5,136,000	7,500	100%	65	24	10	1

TABLE XIV.

SPECIAL BLOOD EXAMINATION, CASE NO. 8,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	4,806,000	6,400	90%	54	32	13	1
II. May 2 May 9.....	4,944,000	6,200	95%	62	27	10	1
III. May 9 May 15.....	4,960,000	6,300	95%	62	27	10	1
IV. May 16 May 22.....	5,040,000	6,420	95%	66	21	10	3
V. May 23 May 29.....	5,056,000	6,400	95%	71	20	9	0

TABLE XV.

SPECIAL BLOOD EXAMINATION, CASE NO. 9,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	4,860,000	8,200	85%	64	27	9	0
II. May 2 May 9.....	4,768,000	8,400	85%	63	25	11	1
III. May 9 May 15.....	4,786,000	8,420	85%	66	23	8	3
IV. May 16 May 22.....	4,848,000	8,240	90%	70	23	8	0
V. May 23 May 29.....	4,880,000	8,440	90%	63	27	10	0

TABLE XVI.

SPECIAL BLOOD EXAMINATION, CASE NO. 10,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	4,224,000	8,200	90%	60	27	10	3
II. May 2 May 9.....	4,472,000	8,600	90%	64	24	11	1
III. May 9 May 15.....	4,604,000	8,240	90%	62	24	14	–
IV. May 16 May 22.....	4,624,000	8,200	90%	62	26	11	1
V. May 23 May 29.....	4,640,000	8,000	95%	69	22	9	–

TABLE XVII.

SPECIAL BLOOD EXAMINATION, CASE NO. 11,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1	3,928,000	8,200	90%	70	18	12	0
II. May 2 May 9	4,730,000	8,000	95%	69	18	12	1
III. May 9 May 15	4,832,000	8,240	95%	68	21	10	1
IV. May 16 May 22	4,860,000	8,380	95%	71	20	9	0
V. May 23 May 29	4,864,000	8,000	95%	69	19	11	1

TABLE XVIII.

SPECIAL BLOOD EXAMINATION, CASE NO. 12,

DURING THE FIVE PERIODS.

This examination consists in count of red and white blood cells (Thomas-Zeiss apparatus), estimation of hæmoglobin (Talquist's method), and differential leucocyte count.

Period	Red blood cells per cubic centimetre	White blood cells per cubic centimetre	Hæmoglobin	Polymorphous leucocytes per one hundred white cells	Small lymphocytes per one hundred white cells	Large lymphocytes per one hundred white cells	Eosinophile leucocytes per one hundred white cells
I. Apr. 25 May 1.....	4,704,000	6,200	90%	63	22	10	–
II. May 2 May 9.....	4,596,000	8,400	85%	66	26	6	2
III. May 9 May 15.....	4,640,000	8,000	90%	64	25	10	1
IV. May 16 May 22.....	4,720,000	8,120	90%	65	24	9	2
V. May 23 May 29.....	4,728,000	8,140	90%	71	20	8	1

TABLE XIX.—PHYSICAL CONDITION OF TWELVE SUBJECTS DURING THE FIRST WEEK OF OBSERVATION, APRIL 25 TO MAY 1.

Subject	Headache and other nervous symptoms	Respiratory symptoms, cough, expectoration, difficult breathing, palpitation	Heart	Pulse regular, full	Lungs	Respiration per minute	Temperature	Stomach	Intestines	Urine
1	None	None	Normal	Sitting 76 Standing 82	Normal	24	98 2-5	Good	Good	Normal
2	None	None	Normal	Sitting 74 Standing 82	Normal	19	98 3-5	Good	Good	Normal
3	None	None	Normal	Sitting 75 Standing 82	Normal	19	98 3-5	Good	Good	Normal
4	None	None	Normal	Sitting 79 Standing 80	Normal	20	98 2-5	Good	Good	Normal
5	None	None	Normal	Sitting 79 Standing 82	Normal	18	98 2-5	Good	Good	Normal
6	None	None	Normal	Sitting 75 Standing 85	Normal	20	98 3-5	Good	Good	Normal
7	None	None	Normal	Sitting 72 Standing 78	Normal	20	98 3-5	Good	Good	Normal
8	None	None	Normal	Sitting 78 Standing 86	Normal	19	99 2-5	Good	Good	Normal
9	None	None	Normal	Sitting 74 Standing 85	Normal	26	98 3-5	Good	Good	Normal
10	None	None	Normal	Sitting 78 Standing 86	Normal	18	98 2-5	Good	Good	Normal
11	None	None	Normal	Sitting 74 Standing 82	Normal	19	98 3-5	Good	Good	Normal
12	None	None	Normal	Sitting 80 Standing 88	Normal	21	98 3-5	Good	Good	Normal

TABLE XX.—DAILY WEIGHTS OF SUBJECTS—POUNDS.

SUBJECTS	1	2	3	4	5	6	7	8	9	10	11	12
April 26	159	153	124	130	203	183	.....	141	126.5	128	140	129
27	162	154	124.5	131.5	203.5	188	149	141.5	128	127	142.5	130
28	160	154	122	129.5	202	190	152	139	127	127.5	141	128
29	159	154	121	127.5	202.5	187	152	140	127.5	129	139.5	128.5
30	162	155.5	121.5	130.5	201	190	153.5	141	127	134	142.5	129.5
May 1	162	154	122	130	202.5	187	154.5	141	129	136	141.5	130
Average for period	160.7	154.1	122.5	129.8	202.4	187.5	152.2	140.6	127.5	130.2	141.1	129.1
May 2	162	155	124	132	204.5	184.5	155	142	129	137	141	131
3	162	153	124	132	197	185	154	143	130	134	140	127.5
4	160	151	121	130.5	192	182	149.5	139	128	134	141	127.5
5	159	154.5	123	133	196	181	153.5	141.5	130	134	141.2	130
6	161	153	124	133	198.5	181	153.5	141	130	132	142	129.5
7	164	150	123.5	133	198	184	153	141.5	130	133	140	131.5
8	161	152	123.5	134	198	181	153	143	129	132	141	132
Average for period	161.3	152.6	123.3	132.5	197.7	182.6	153	141.1	129.4	133.7	140.9	129.9
May 9	160.5	153	124	135	201	185	155	144	130	134	139	130
10	163	153.5	122.5	135	201	185.5	154.5	145	129	132	141.5	133
11	162	153.5	125	134	202	184	152	141.5	129.5	132.5	140	133
12	161.5	153	124	135	202	181	153.5	141	129.5	132	140	133
13	161.5	154	125	136.5	203	186	154	143.5	130	132	140	135
14	163	154.5	126	137	202.5	184.5	155.5	143	131	131	139	134
15	162	155	126	136.5	201.5	183	155.5	143	129.5	133	140	134.5
Average for period	162	153.8	124.6	135.6	201.9	184.1	154.3	144.3	129.8	132.4	139.9	133.2

TABLE XX.—DAILY WEIGHTS OF SUBJECTS—POUNDS.—*Continued.*

SUBJECTS	1	2	3	4	5	6	7	8	9	10	11	12
May 16	162.5	154	126	136	200.5	182.5	153.5	144	129	136	140	134
17	163	158	126.5	137	202.5	186	156.5	146	130.5	134	143	135
18	162	155	126.5	137	202	187	155	145	132	133.5	143	135
19	163.5	157	126	140	202.5	191	157	144.5	132	134.5	143	136
20	165	156.5	127.5	139.5	205	191	157	146.5	133	137	141.5	132
21	164	155	125.5	139	204.5	189	155	145	131	135	141.5	129.5
22	165	154.5	126	139.5	203.5	188.5	156	144	129	136.5	142	130.5
Average for period	163.6	155.7	126.2	138.3	203	187.9	155.7	145	130.9	135.2	142	133.1
May 23	164	155	126	140	203	188	156	146.5	130.5	136	141.5	133
24	165	157	127	140	205	190.5	157	148	132	138	142	136
25	162	157	124	138	204	189	156.5	146	132	138	143	132
26	162.5	156.5	124.5	140	205	189	157	147	133.5	137	142	133.5
27	161	155	124	140	205	189	156	144	131	140	141	133
28	162	156.5	124	140	203.5	189	155.5	143.5	131.5	139	140.5	130.5
29	162	157	122.5	140	203	189	157	146	132	139	138.5	131
Average for period	162.6	156.3	124.6	139.8	204	188.8	156.4	146	131.9	138	141.2	132.6

In discussing Tables VII to XVIII, Dr. Archinard says: "It will be noticed that the red blood cells have rather a low count. This may be explained in several ways. First, the blood was always drawn and counted about two hours after the subject's dinner; second, because in our latitude the average number of blood cells per cubic centimetre is rather below the five-million mark; and, third, because in my personal experience the negro race has a lower erythrocyte count than the Caucasian race. The number of white blood cells does not seem to have been affected, the count being rather higher than the average normal. The hour of examination is no doubt chiefly responsible for this."

"The differential leucocyte count, practically normal, shows that no disease whose recognition depends on the character and number of those elements existed in our subjects."

At the beginning of the experiment each subject was examined regarding the condition of his lungs, stomach, intestines, urine, etc.

Table XIX gives these data.

At the close of Period V the same examinations were made, and showed no material change in any subject.

The daily weights of the subjects, taken from 4:30 to 5 P.M. are given in Table XX.

Regarding his examinations and observations of the subjects, Dr. Archinard, in his report to the Board of Health, says:

"The twelve men remained in perfect condition, with the few exceptions mentioned below, during the entire five weeks of the observations and at no time were we delayed or forced to deviate from our daily programme.

"The few exceptions were these: On May 3d, Nos. 8 and 12 became engaged in an argument (as they explained it) the outcome of which was that No. 8 hit No. 12 in the mouth, knocking out three teeth. No. 12 was unable on this account to take solid food for three days, but continued to eat molasses with a spoon. No. 8's hand was dressed with hydrogen peroxid.

"On May 4th, Nos. 5, 6, and 7 reported loose bowels, but there was no decrease in appetite. One tablespoonful of ordinary chalk mixture sufficed to remedy this.

"On May 5th, Nos. 1, 2, 4, 9, and 10 reported loose bowels, appetite normal. One dose of ordinary chalk mixture relieved this trouble.

"On May 19th, No. 12 complained of headache after running a foot race, and ate very little supper. Temperature, 99 2-5. Next morning his temperature was 100 2-5, and he complained of sore throat. Quinine and phenacetine (three grains each, three times a day) were given this day and the next, after which he felt better and nothing of his ailment remained.

"On may 27th, No. 9, who had been well, developed an eruption which proved to be one of tertiary syphilis, but this seemed to incommode him very little."

The object of the experiment was to observe the effects on human subjects of feeding sirups and molasses of high sulphite content.

Negroes in good health were selected on account of:

1. Their fondness for foods of this kind.
2. Their entire ignorance of the supposed evil effects of the sulphites in the food.
3. Ease with which they could be controlled.

The subjects while in jail were given such liberties as to render their confinement easy, and were required to do such work as that to which they were accustomed. The subjects were allowed to eat the sirups, etc.—not forced to eat them—in connection with normal diet.

The experiment was divided into five periods of one week each, designated as Periods I, II, III, IV, and V. During Period I the subjects were fed on a normal diet without sirup or molasses, and data recorded in order to ascertain their normal conditions. During Periods II, III, and IV they were allowed sirup or molasses as they desired to eat it along with their regular food. Observations were made during these periods as to the effects produced.

During Period V they were fed again without molasses, and observations and examinations were made. The articles of food were clean, wholesome, and substantial, and the general conditions such that, should harm have resulted, it could have been concluded that the sulphites in the sirups, etc., were the cause. The control and supervision of the subjects were such that they could not, had they been so inclined, deviate from the daily programme.

The subjects were in ignorance of the presence of sulphites in their food, and consequently there was no tendency to produce unnatural mental conditions by anticipation of harm resulting from eating the sirups, etc.

CONCLUSIONS.

From the foregoing tabulated data and from the observations of the subjects and from their own statements as to their condition of health, etc., while considering the effects of regular hours, sanitary and hygienic surroundings, and general contentment, it is believed that the following conclusions from Dr. Archinard's report to the Board of Health are thoroughly justified:

1. "From a practical standpoint the experiments on molasses feeding were carried on for a sufficient length of time and on a scale large enough to test the effects of these foods on the human subject in ordinary health.

2. "We believe that our mode of examination is the fairest way to test the effects of substances on the human subject under natural conditions, for here we had a large number of docile and ignorant men who did not know what was expected of them, were neither frightened nor awed, and put in the same condition as persons who partake of molasses as a food, eating of the same according to their taste and liking, and the effects on them carefully and faithfully noted from day to day and week to week.

3. "As in none of our cases were the body functions interfered with, in each one the body weight increased, and as the blood steadily increased in number of red blood cells, in the percentage of hæmoglobin, etc., it must be admitted that these subjects were gaining in health and neither doing nor taking anything prejudicial to their physical well-being.

4. "A careful survey of Table XX, on weights, and of Tables

VII to XVII, on blood examination, will satisfy any one that the subjects gradually improved in weight, body functions, and blood conditions, notwithstanding the fact that during Periods II, III, and IV they daily took a considerable quantity of sirup or molasses containing appreciable quantities of sulphur as sulphites.

"Reference to Tables III, XIX, XX, and VII to XVII, will demonstrate that the amount of molasses consumed, although in some instances very large, does not seem to have had any deleterious effects on the functions, weight, and blood condition of the subjects, but rather to the contrary.

"We are, therefore, free to conclude that molasses feeding, even when said molasses contains as high as over 900 milligrams per kilo of sulphur as sulphites, can be carried on under ordinary circumstances without prejudicial effect to health."

MR. MAGRUDER, of Virginia: Dr. T. B. Wagner, of the Corn Products Refining Company, is present with us, and I move that he be given ten minutes in which to address the Convention.

Motion seconded and carried.

PRESIDENT LADD: If Dr. Wagner is here we will be glad to hear him.

DR. WAGNER: I want to thank you for the opportunity you are giving me to say a few words to you about glucose, so called, and corn sirup. (Paper follows.)

CORN SIRUP

By Dr. T. B. Wagner, of the Corn Products Refining Co., Chicago.

"Corn Sirup" (Glucose) is a sirup obtained exclusively from Indian corn. The manufacture of this product was commenced in this country about fifty years ago, and from an insignificant beginning has grown to an industry of great magnitude, employing many thousands of men. There is no other industry in this country, save perhaps the flour industry, which is of greater interest and help to the farmer than the manufacture of corn products. The total amount of cash corn purchased by the various concerns engaged in this line of business exceeds 40,000,000 bushels annually. This great demand for a cash commodity naturally has a tendency to create higher prices for the grain, and on that account the farmer is vitally interested in having this industry protected and stimulated, as he is its immediate beneficiary. Obviously, any action which might cause a reduced demand for corn would injure the farmer, as such a reduced demand could not help but lower the price of the grain. The interests of the corn-producing farmer are thus closely interwoven with those of the manufacturer who turns the cereal into manufactured products, such as "Corn Sirup," "Corn Starch," "Corn Sugar," etc.

When the product was first put on the market, it was employed principally in the manufacture of candies and as an adulterant of molasses and cane sirups, and was sold under the name of "Glucose." This name is still in use as a *trade* designation, it being sold only in bulk to the manufacturers.

The fact that "Glucose" was used so extensively in those days as an adulterant created a strong prejudice against it, which led to many misrepresentations about the nature of the product and its wholesomeness as a food.

The producer of "Corn Sirup" does not want his product to sail under false colors, he, therefore, offers it to the consumer under its correct name "Corn Sirup," imparting thereby infinitely more knowledge as to the true character of the product than he could by employing the name "Glucose," which to the layman has no meaning whatsoever. The name "Corn Sirup," however, is not an arbitrary name. It is copied after the German name "Potato Sirup," meaning sirup produced from potatoes, which product is practically identical with "Corn Sirup."

Germany was the first country to produce such sirup. Since its earliest production, almost a century ago, it was called "Potato Sirup." The name "Glucose" as a trade designation is unknown in Germany. Other names, however, have been given to the product, such as "Capillary Sirup," "Starch Sirup," "Bon Bon Sirup," but "Potato Sirup" is to-day still the name which is most generally employed.

Corn sirup found great favor with the consuming public. Large amounts of money have been spent in developing this business; the trade-marks and brands thus established are to-day assets of great value; the business has never been promoted more actively than to-day; there is hardly a fair-sized town but what has a bill-board display of "Karo Corn Sirup," with the result that "Corn Sirup" has become a household word. Shipments of this class of sirup, upward of forty carloads a day, bear out this statement.

It could, therefore, be expected that this important and typically American industry would be accorded the fullest support by the U. S. Department of Agriculture; however, quite the contrary has been the case. In Circular No. 21, Office of the Secretary of Agriculture, under date of June 26, 1906, the name "Corn Sirup" is omitted as a synonym for "Glucose," and thus an attempt has been made to abolish the name "Corn Sirup," under the amazing assertion that this name is misleading and that the consumer is being deceived by it. If such a view were to hold, it could have but one effect—serious injury to one of the most important branches of one of our leading industries. Very properly one may ask, what good will be accomplished by abolishing the name "Corn Sirup," which for at least thirty years has been a recognized synonym for "Glucose"? Or, in what manner is the consumer to be benefited by such a decision? It is impossible to find a satisfactory answer, as such an action cannot accomplish any of the avowed objects of the Food and Drugs Act, commonly known as the Pure-Food Law. These objects are, briefly, the prevention of sales of unwholesome food and the misbranding of food products.

The first-named need not be considered at this time, as the wholesomeness of "Corn Sirup" has been established beyond all doubt, and has been attested to repeatedly by the U. S. Department of Agriculture. As to the second item, the Board of Food and Drug Inspection hold that the product is misbranded unless it is labelled "Glucose." The manufacturers contend that the names "Corn Sirup" and "Glucose" are commercially synonymous, on account of their long usage, and that, therefore, the charge of misbranding is unwarranted. The Board of Food and Drug Inspection insist that the name "Corn Sirup" indicates to the consumer that the product is a sirup occurring in corn, whereas, in fact, the product does not occur as such in corn, but is obtained from it by a chemical process. To the layman, what meaning can the name "Corn Sirup" convey other than "sirup made from corn," the same as "cane sirup" means to him "sirup made from cane," or "sorghum sirup" "sirup made from sorghum," or "potato sirup" "sirup made from potatoes"? This has always been the accepted meaning, as is evidenced by the fact that the name "Corn Sirup" was employed in U. S. Government documents and reports as early as 1884. Since then it has been repeatedly and steadily employed, particularly in the circulars of the Secretary of Agriculture, containing the promulgation of food definitions and food standards. In all these promulgations the name "Corn Sirup" is employed as a synonym for "Glucose," and only in the last publication, dated September 1906, it was omitted. The Supreme Court of the State of Michigan upheld the name "Corn Sirup" as a synonym for "Glucose." Food authorities in this country, as well as abroad, recognize the name "Corn Sirup," and the Food Commissioners of a great many States endorse it. The most recently enacted food laws, like that of Illinois, recognize specifically the name "Corn Sirup," and give it the preference over "Glucose." The name is recognized by the trade in general, of which ample evidence can be found in the price-lists of wholesale grocery houses and in trade journals.

It is clear from the above that the preponderance of evidence is in favor of the manufacturers. What, then, is there justifying the position taken by the Department of Agriculture? It has been stated by the Department that "Glucose" is a better name because it is the scientific name of the product. If the products coming under the provisions of the Food and Drugs Act were henceforth to be known only by their scientific names, borax, for instance, would have to be called "biborate of soda," sugar "sucrose," etc. Clearly, Congress did not entertain any such ideas when it enacted the food law. Granting, however, that it were proper to restrict the naming of food products to their scientific appellations, in the case of "Corn Sirup" it would be folly to substitute for it the name "Glucose." "Corn Sirup" is composed of ingredients designated by scientists as "Glucose" (or dextrose), "Maltose," and "Dextrines." Of these, the first-named is present only to the extent of 35 per cent. How, then, can a product be logically named after but *one* of its ingredients? This being the case, how can the manufacturer be expected to duplicate the work done in spreading the truth about the merits of "Corn Sirup" as a food, and now assume the enormous expense of a new campaign of education, convincing the public that the name "Glucose" stands for the product which heretofore they have been buying so freely under the name "Corn Sirup"? How can the manufacturer do this when he knows that the name "Glucose" might at any time be declared illegal under the Food and Drugs Act?

Leaving all scientific and technical arguments out of consideration, the whole issue resolves itself into the one simple proposition: Is the name "Corn Sirup" apt to create in the minds of the public an erroneous impression as to its origin, and will the public in any way be misled by that name? The manufacturers state emphatically that as long as English is spoken, the name "Corn Sirup" will not permit of any misinterpretation—it stands for "sirup made from corn" and nothing else.

DISCUSSION.

Dr. Wagner: The gentleman from Louisiana said, I believe, that a glucose mixture was being sold as the straight Louisiana product. I don't think there is a reputable manufacturer selling glucose under the name of the Louisiana product.

Mr. Emery: Are there any disreputable ones doing it?

Dr. Wagner: There may be disreputable manufacturers the same as there are disreputable men in any other lines of business. There are reputable and disreputable men in the manufacturing business, of course. However, my firm claims the distinction of belonging to the reputable class. If they sell a mixture of molasses and corn sirup, the words "corn sirup" appear on the labels in just as large type as the word "molasses."

Mr. Emery: I want to make a statement right here. I have had some experience in this matter. We got a law passed controlling the sale of this glucose, and it brought to my office certain representatives from Chicago, and they were putting on the market mixtures like Old Pride Sorgum and a lot of fancy names like that. Those mixtures had only about 15 per cent molasses in them to my certain knowledge. One was, I think, "Pure Louisiana Molasses," and that wouldn't go in Wisconsin. When the Corn Products Refining Company say they didn't put a sirup out in Wisconsin like that, I know it isn't so. I know they did. I remember at one of our meetings one of the men who represented the Corn Products Company said, one reason among others for not coming out with the word "Glucose" on their labels was because of the prejudice among the people against it. They had a prejudice against it, and so the glucose people didn't use that word on their labels!

Dr. Irion: I am reminded by this discussion on glucose, of a railway accident which occurred in Louisiana some years ago. Louisiana, gentlemen, as you well know, is the place where "Pure Louisiana Molasses" is supposed to come from. There is a firm of molasses manufacturers in one of the northern cities of the State which sells its product in nearly every State of the Union. Its product is advertised as Pure Sugar-house Molasses, or Sirup, and it even goes so far as to put the names of the plantations on the labels in order to convey the impression that the molasses was made and put up on these plantations. On one occasion a freight train was wrecked near that town, and the largest individual claim for damages, as the result of this wreck, was one from this "Pure Louisiana Molasses" factory for five bursted tank cars of glucose.

Dr. Wagner: In reply to the remarks made by Mr. Emery I will say that the Corn Products Refining Company does not put on the market any such product as Old Pride Sorgum, Pure Louisiana Molasses, or any sirup of similar names. Our predecessors, the Davenport Refining Company, may have done so, but our house to-day is not putting out any such products. The Corn Products Refining Company bought out the Davenport Refining Company years ago, and their labels have been destroyed. If the past has been corrected, everybody ought to be satisfied. Labels like "Honey Drip," etc., are misleading, of course; but no such labels are being used by the company I represent. I believe the Davenport Refining Company had a sorgum label, but certainly such labels are not now being used. I do not deny that those sirups were misbranded. But the Corn Products Company has corrected all that. I stand on that record to-day. There is not one such label on the market. If all manufacturing concerns were as honest in labelling their products as we, there would be mighty little trouble, I think.

Mr. Emery: Well, of course such reports as those are very gratifying.

President Ladd: The next paper on the programme is one on the "Need for Uniform Standards among the States and between the State and Federal Government," by Hon. A. F. Hitt, State Dairy, Food, and Oil Commissioner, Boise, Ida. Mr. Hitt is not present, however.

Mr. Emery: Before we proceed I will ask permission to make a motion, and I believe the Association will recognize the propriety of this motion. It is that the President of this Association appoint a committee of three to be known as the Press Committee, which committee shall give out news to the press. I think the Association owes it to itself to see that correct information is given out at these meetings and thus guard against misrepresentations which might otherwise come about.

Motion seconded and carried unanimously.

President Ladd: I will appoint that committee after the next paper has been read.

Miss Lakey: I would like to ask what the Food Committee of the Consumers' League could do to help secure again the establishment of standards. I should be very glad, gentlemen, if this Association could give us some instructions as to what we could do toward that.

Dr. Scovell: I would say that the Committee on Resolutions should ask the Secretary of Agriculture to do all in his power to re-establish them.

Miss Lakey: Will that not have to go before Congress? They cut the standards clause out, you will remember, of course.

Dr. Scovell: The way to work that is through the Secretary of Agriculture.

President Ladd: The next paper is the "Report of the Food Standards Committee," by Dr. Richard Fischer, Chemist, Dairy and Food Commission, Madison, Wis.

REPORT OF THE FOOD STANDARDS COMMITTEE.

By Dr. Richard Fischer, Chemist, Dairy and Food Commission, Wisconsin.

To the Association of State and National Food and Dairy Departments.

Gentlemen: Your Committee on Food Standards beg to submit the following report:

In accordance with a resolution adopted last year at the Hartford meeting of our Association, President Ankeney appointed a Standards Committee of five members, two of whom, namely M. A. Scovell and E. H. Jenkins, were already members of the Standards Committee of the Association of Official Agricultural Chemists. The two committees, constituting a Joint Committee of eight, met last December in Kentucky, under authorization of the United States Secretary of Agriculture, to collaborate with him in ascertaining the purity of food products and determining what are adulterations therein.

The Joint Committee organized by electing Wm. Frear president, Richard Fischer vice-president, and E. H. Jenkins secretary. Public meetings were held in Louisville and Lexington, at which manufacturers of the following food products were granted hearings: spirituous liquors, fruit juices, ice cream, meat extracts, gelatin, pickles, jellies, jams, and preserves. Communications from other manufacturers were also read and discussed, and the subjects of preservatives and coloring matters considered.

The appropriation for financing this work having been discontinued at the last session of Congress, no further meetings of the Joint Committee were held until Monday, July 15, 1907. Considerable work was, however, done during the interim by the individual members of the Committee in investigating particular subjects assigned to them.

At the meeting held on July 15th and on the three following days all members of your Committee were present except Elton Fulmer. The subjects considered were: meat and bone extracts, peptones, gelatin, fruit juices, spirituous liquors, preservatives, and coloring matters.

After the adjournment of the Joint Committee, your Committee met in executive session and unanimously resolved to recommend to your Association for adoption the food standards appended to this report.

Your Committee further recommends that it be instructed to continue conjointly with the A. O. A. C. Committee the work of preparing standards of food products with a view of securing harmony of standards in this country.

RICHARD FISCHER, Chairman.
E. H. JENKINS.
M. A. SCOVELL.
H. E. BARNARD.

PRINCIPLES ON WHICH THE STANDARDS ARE BASED.

The general considerations which have guided the Committee in preparing the standards for food products are the following:

1. The standards are expressed in the form of definitions, with or without accompanying specifications of limit in composition.
2. The main classes of food articles are defined before the subordinate classes are considered.
3. The definitions are so framed as to exclude from the articles defined substances not included in the definitions.
4. The definitions include, where possible, those qualities which make the articles described wholesome for human food.
5. A term defined in any of the several schedules has the same meaning wherever else it is used in this report.
6. The names of food products herein defined usually agree with existing American trade or manufacturing usage; but where such usage is not clearly established or where trade names confuse two or more articles for which specific designations are desirable, preference is given to one of the several trade names applied.
7. Standards are based upon data representing materials produced under American conditions and manufactured by American processes, or representing such varieties of foreign articles as are chiefly imported for American use.

8. The standards fixed are such that a departure of the articles to which they apply, above the maximum or below the minimum limit prescribed, is evidence that such articles are of inferior or abnormal quality.

9. The limits fixed as standard are not necessarily the extremes authentically recorded for the article in question, because such extremes are commonly due to abnormal conditions of production and are usually accompanied by marks of inferiority or abnormality readily perceived by the producer or manufacturer.

FOOD STANDARDS.

I. ANIMAL PRODUCTS.

A. Meats and the Principal Meat Products.

a. MEATS.

1. *Meat, flesh,* is any clean, sound, dressed, and properly prepared edible part of animals in good health at the time of slaughter, and if it bears a name descriptive of its kind, composition, or origin, it corresponds thereto. The term "animals," as herein used, includes not only mammals, but fish, fowl, crustaceans, mollusks, and all other animals used as food.

2. *Fresh meat* is meat from animals recently slaughtered and properly cooled until delivered to the consumer.

3. *Cold-storage meat* is meat from animals recently slaughtered and preserved by refrigeration until delivered to the consumer.[a]

4. *Salted, pickled,* and *smoked meats* are unmixed meats preserved by salt, sugar, vinegar, spices, or smoke, singly or in combination, whether in bulk or in suitable containers.[b]

---

[a] The establishment of proper periods of time for cold storage is reserved for future consideration when the investigations on this subject, authorized by Congress, are completed.

[b] Suitable containers for keeping moist food products such as sirups, honey, condensed milk, soups, meat extracts, meats, manufactured meats and undried fruits and vegetables, and wrappers in contact with food products, contain on their surfaces, in contact with the food product, no lead, antimony, arsenic, zinc or copper or any compounds thereof or any other poisonous or injurious substance. If the containers are made of tin plate, they are outside-soldered and the plate in no place contains less than one hundred and thirteen (113) milligrams of tin on a piece five (5) centimetres square or one and eight-tenths (1.8) grains on a piece two (2) inches square.

The inner coating of the containers is free from pin-holes, blisters, and cracks.

If the tin plate is lacquered, the lacquer completely covers the tinned surface within the container and yields to the contents of the container no lead, antimony, arsenic, zinc or copper or any compounds thereof, or any other poisonous or injurious substance.

b. MANUFACTURED MEATS.

1. *Manufactured meats* are meats not included in paragraphs 2, 3, and 4, whether simple or mixed, whole or comminuted, in bulk or in suitable containers, with or without the addition of salt, sugar, vinegar, spices, smoke, oils, or rendered fat. If they bear names descriptive of kind, composition, or origin, they correspond thereto, and when bearing such descriptive names, if force or flavoring meats are used, the kind and quantity thereof are made known.

c. MEAT EXTRACTS, MEAT PEPTONES, GELATIN, ETC.

1. *Meat extract* is the product obtained by extracting fresh meat with boiling water and concentrating the liquid portion by evaporation after the removal of fat, and contains not less than seventy-five (75) per cent of total solids, of which not over twenty-seven (27) per cent is ash, and not over twelve (12) per cent is sodium chlorid (calculated from the total chlorin present), not over six-tenths (0.6) per cent is fat, and not less than eight (8) per cent is nitrogen. The nitrogenous compounds contain not less than forty (40) per cent of meat bases and not less than (10) ten per cent of kreatin and kreatinin.

2. *Fluid meat extract* is identical with meat extract except that it is concentrated to a lower degree and contains not more than seventy-five (75) and not less than fifty (50) per cent of total solids.

3. *Bone extract* is the product obtained by extracting fresh trimmed bones with boiling water and concentrating the liquid portion by evaporation after removal of fat, and contains not less than seventy-five (75) per cent of total solids.

4. *Fluid bone extract* is identical with bone extract except that it is concentrated to a lower degree and contains not more than seventy-five (75) and not less than fifty (50) per cent of total solids.

5. *Meat juice* is the fluid portion of muscle fibre, obtained by pressure or otherwise, and may be concentrated by evaporation at a temperature below the coagulating-point of the soluble proteids. The solids contain not more than fifteen (15) per cent of ash, not more than two and five-tenths (2.5) per cent of sodium chlorid (calculated from the total chlorin present), not more than four (4) nor less than two (2) per cent of phosphoric acid (P_2O_5), and not less than twelve (12) per cent of nitrogen. The nitrogenous bodies contain not less than thirty-five (35) per cent of coagulable proteids and not more than forty (40) per cent of meat bases.

6. *Peptones* are products prepared by the digestion of proteid material by means of enzymes or otherwise, and contain not less than ninety (90) per cent of proteoses and peptones.

7. *Gelatin* (*edible gelatin*) is the purified, dried, inodorous product of the hydrolysis, by treatment with boiling water, of certain tissues, as skin, ligaments, and bones, from sound animals, and contains not more than two (2) per cent and not less than fifteen (15) per cent of nitrogen.

d. LARD.

1. *Lard* is the rendered fresh fat from hogs in good health at the time of slaughter, is clean, free from rancidity, and contains, necessarily incorporated in the process of rendering, not more than one (1) per cent of substances other than fatty acids and fat.

2. *Leaf lard* is lard rendered at moderately high temperatures from the internal fat of the abdomen of the hog, excluding that adherent to the intestines, and has an iodine number not greater than sixty (60).

3. *Neutral lard* is lard rendered at low temperatures.

B. Milk and Its Products.

a. MILKS.

1. *Milk* is the fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

2. *Blended milk* is milk modified in its composition so as to have a definite and stated percentage of one or more of its constituents.

3. *Skim milk* is milk from which a part or all of the cream has been removed, and contains not less than nine and one-quarter (9.25) per cent of milk solids.

4. *Pasteurized milk* is milk that has been heated below boiling, but sufficiently to kill most of the active organisms present and immediately cooled to 50° Fahr. or lower.

5. *Sterilized milk* is milk that has been heated at the temperature of boiling water or higher for a length of time sufficient to kill all organisms present.

6. *Condensed milk, evaporated milk,* is milk from which a considerable portion of water has been evaporated, and contains not less than twenty-eight (28) per cent of milk solids, of which not less than twenty-seven and five-tenths (27.5) per cent is milk fat.

7. *Sweetened condensed milk* is milk from which a considerable

portion of water has been evaporated and to which sugar (sucrose) has been added, and contains not less than twenty-eight (28) per cent of milk solids, of which not less than twenty-seven and five-tenths (27.5) per cent is milk fat.

8. *Condensed skim milk* is skim milk from which a considerable portion of water has been evaporated.

9. *Buttermilk* is the product that remains when butter is removed from milk or cream in the process of churning.

10. *Goat's milk, ewe's milk, et cetera,* are the fresh, clean, lacteal secretions, free from colostrum, obtained by the complete milking of healthy animals other than cows, properly fed and kept, and conform in name to the species of animals from which they are obtained.

b. CREAM.

1. *Cream* is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force, is fresh and clean, and contains not less than eighteen (18) per cent of milk fat.

2. *Evaporated cream, clotted cream,* is cream from which a considerable portion of water has been evaporated.

c. MILK FAT OR BUTTER FAT.

1. *Milk fat, butter fat,* is the fat of milk and has a Reichert-Meissl number not less than twenty-four (24) and a specific gravity not less than $0.905 \frac{40° \text{C.}}{40° \text{C.}}$

d. BUTTER.

1. *Butter* is the clean, non-rancid product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also contains a small portion of the other milk constituents, with or without salt, and contains not less than eighty-two and five-tenths (82.5) per cent of milk fat. By acts of Congress approved August 2, 1886, and May 9, 1902, butter may also contain added coloring-matter.

2. *Renovated butter, process butter,* is the product made by melting butter and reworking, without the addition or use of chemicals or any substances except milk, cream, or salt, and contains not more than sixteen (16) per cent of water and at least eighty-two and five-tenths (82.5) per cent of milk fat.

e. CHEESE.

1. *Cheese* is the sound, solid, and ripened product made from milk or cream by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning, and contains, in the water-free substance, not less than fifty (50) per cent of milk fat. By act of Congress, approved June 6, 1896, cheese may also contain added coloring-matter.

2. *Skim milk cheese* is the sound, solid, and ripened product, made from skim milk by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning.

3. *Goat's milk cheese, ewe's milk cheese, et cetera,* are the sound, ripened products made from the milks of the animals specified, by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning.

f. ICE CREAMS.

1. *Ice cream* is a frozen product made from cream and sugar, with or without a natural flavoring, and contains not less than fourteen (14) per cent of milk fat.

2. *Fruit ice cream* is a frozen product made from cream, sugar, and sound, clean, mature fruits, and contains not less than twelve (12) per cent of milk fat.

3. *Nut ice cream* is a frozen product made from cream, sugar, and sound, nonrancid nuts, and contains not less than twelve (12) per cent of milk fat.

g. MISCELLANEOUS MILK PRODUCTS.

1. *Whey* is the product remaining after the removal of fat and casein from milk in the process of cheese-making.

2. *Kumiss* is the product made by the alcoholic fermentation of mare's or cow's milk.

II. VEGETABLE PRODUCTS.

A. GRAIN PRODUCTS.

a. GRAINS AND MEALS.

1. *Grain* is the fully matured, clean, sound, air-dry seed of wheat, maize, rice, oats, rye, buckwheat, barley, sorghum, millet, or spelt.

2. *Meal* is the clean, sound product made by grinding grain.

3. *Flour* is the fine, clean, sound product made by bolting wheat meal and contains not more than thirteen and one-half (13.5) per cent of moisture, not less than one and twenty-five-hundredths (1.25) per cent of nitrogen, not more than one (1) per cent of ash, and not more than fifty-hundredths (0.50) per cent of fibre.

4. *Graham flour* is unbolted wheat meal.

5. *Gluten flour* is the clean, sound product made from flour by the removal of starch, and contains not less than five and six-tenths (5.6) per cent of nitrogen and not more than ten (10) per cent of moisture.

6. *Maize meal, corn meal, Indian corn meal,* is meal made from sound maize grain, and contains not more than fourteen (14) per cent of moisture, not less than one and twelve-hundredths (1.12) per cent of nitrogen, and not more than one and six-tenths (1.6) per cent of ash.

7. *Rice* is the hulled, or hulled and polished grain of *Oryza sativa.*

8. *Oatmeal* is meal made from hulled oats, and contains not more than twelve (12) per cent of moisture, not more than one and five-tenths (1.5) per cent of crude fibre, not less than two and twenty-four-hundredths (2.24) per cent of nitrogen, and not more than two and two-tenths (2.2) per cent of ash.

9. *Rye flour* is the fine, clean, sound product made by bolting rye meal, and contains not more than thirteen and one-half (13.5) per cent of moisture, not less than one and thirty-six-hundredths (1.36) per cent of nitrogen, and not more than one and twenty-five-hundredths (1.25) per cent of ash.

10. *Buckwheat flour* is bolted buckwheat meal, and contains not more than twelve (12) per cent of moisture, not less than one and twenty-eight-hundredths (1.28) per cent of nitrogen, and not more than one and seventy-five-hundredths (1.75) per cent of ash.

B. Fruits and Vegetables.

a. FRUIT AND FRUIT PRODUCTS.

(Except fruit juices, fresh, sweet, and fermented, and vinegars.)

1. *Fruits* are the clean, sound, edible, fleshy fructifications of plants, distinguished by their sweet, acid, and ethereal flavors.

2. *Dried fruit* is the clean, sound product made by drying mature, properly prepared, fresh fruit in such a way as to take up no harmful substance, and conforms in name to the fruit used in its preparation; *sun-dried fruit* is dried fruit made by drying without the use of artificial means; *evaporated fruit* is dried fruit made by drying with the use of artificial means.

3. *Evaporated apples* are evaporated fruit made from peeled and cored apples, and contain not more than twenty-seven (27) per cent of moisture determined by the usual commercial method of drying for four (4) hours at the temperature of boiling water. (Standards for other dried fruits are in preparation.)

4. *Canned fruit* is the sound product made by sterilizing clean, sound, properly matured and prepared fresh fruit, by heating, with or without sugar (sucrose) and spices, and keeping in suitable, clean, hermetically sealed containers, and conforms in name to the fruit used in its preparation.

5. *Preserve*[a] is the sound product made from clean, sound, properly matured and prepared fresh fruit and sugar (sucrose) sirup, with or without spices or vinegar, and conforms in name to that of the fruit used, and in its preparation not less than forty-five (45) pounds of fruit are used to each fifty-five (55) pounds of sugar.

6. *Honey preserve*[a] is preserve in which honey is used in place of sugar (sucrose) sirup.

7. *Glucose preserve*[a] is preserve in which a glucose product is used in place of sugar (sucrose) sirup.

8. *Jam, marmalade*[a] is the sound product made from clean, sound, properly matured and prepared fresh fruit and sugar (sucrose), with or without spices or vinegar, by boiling to a pulpy or semisolid consistence, and conforms in name to the fruit used, and in its preparation not less than forty-five (45) pounds of fruit are used to each fifty-five (55) pounds of sugar.

9. *Glucose jam, glucose marmalade*,[a] is jam in which a glucose product is used in place of sugar (sucrose).

10. *Fruit butter*[a] is the sound product made from fruit juice and clean, sound, properly matured and prepared fruit, evaporated to a semisolid mass of homogeneous consistence, with or without the addition of sugar and spices or vinegar, and conforms in name to the fruit used in its preparation.

11. *Glucose fruit butter*[a] is fruit butter in which a glucose product is used in place of sugar (sucrose).

12. *Jelly*[a] is the sound, semisolid, gelatinous product made by boiling clean, sound, properly matured and prepared fresh fruit with water, concentrating the expressed and strained juice, to which sugar (sucrose) is added, and conforms in name to the fruit used in its preparation.

13. *Glucose jelly*[a] is jelly in which a glucose product is used in place of sugar (sucrose).

---

[a] Products made with mixtures of sugar, glucose, and honey, or any two thereof, are reserved for future consideration.

b. VEGETABLES AND VEGETABLE PRODUCTS.

1. *Vegetables* are the succulent, clean, sound, edible parts of herbaceous plants used for culinary purposes.

2. *Dried vegetables* are the clean, sound products made by drying properly matured and prepared vegetables in such a way as to take up no harmful substance, and conform in name to the vegetables used in their preparation; *sun-dried vegetables* are dried vegetables made by drying without the use of artificial means; *evaporated vegetables* are dried vegetables made by drying with the use of artificial means.

3. *Canned vegetables* are sound, properly matured and prepared fresh vegetables, with or without salt, sterilized by heat, with or without previous cooking in vessels from which they take up no metallic substance, kept in suitable, clean, hermetically sealed containers, are sound and conform in name to the vegetables used in their preparation.

4. *Pickles* are clean, sound, immature cucumbers, properly prepared, without taking up any metallic compound other than salt, and preserved in any kind of vinegar, with or without spices; *pickled onions, pickled beets, pickled beans*, and other pickled vegetables are vegetables prepared as described above, and conform in name to the vegetables used.

5. *Salt pickles* are clean, sound, immature cucumbers, preserved in a solution of common salt, with or without spices.

6. *Sweet pickles* are pickled cucumbers or other vegetables in the preparation of which sugar (sucrose) is used.

7. *Sauerkraut* is clean, sound, properly prepared cabbage, mixed with salt, and subjected to fermentation.

8. *Catchup* (*ketchup, catsup*) is the clean, sound product made from the properly prepared pulp of clean, sound, fresh, ripe tomatoes, with spices and with or without sugar and vinegar: *mushroom catchup, walnut catchup, et cetera*, are catchups made as above described, and conform in name to the substances used in their preparation.

C. SUGARS AND RELATED SUBSTANCES.

a. SUGAR AND SUGAR PRODUCTS.

SUGARS.

1. *Sugar* is the product chemically known as sucrose (saccharose) chiefly obtained from sugar cane, sugar beets, sorghum, maple, and palm.

2. *Granulated, loaf, cut, milled,* and *powdered sugars* are different forms of sugar, and contain at least ninety-nine and five-tenths (99.5) per cent of sucrose.

3. *Maple sugar* is the solid product resulting from the evaporation of maple sap, and contains, in the water-free substance, not less than sixty-five one-hundredths (0.65) per cent of maple sugar ash.

4. *Massecuite, melada, mush sugar,* and *concrete* are products made by evaporating the purified juice of a sugar-producing plant, or a solution of sugar, to a solid or semi-solid consistence, and in which the sugar chiefly exists in a crystalline state.

MOLASSES AND REFINERS' SIRUP.

1. *Molasses* is the product left after separating the sugar from massecuite, melada, mush sugar, or concrete, and contains not more than twenty-five (25) per cent of water and not more than five (5) per cent of ash.

2. *Refiners' sirup, treacle,* is the residual liquid product obtained in the process of refining raw sugars, and contains not more than twenty-five (25) per cent of water and not more than eight (8) per cent of ash.

SIRUPS.

1. *Sirup* is the sound product made by purifying and evaporating the juice of a sugar-producing plant without removing any of the sugar.

2. *Sugar-cane sirup* is sirup made by the evaporation of the juice of the sugar cane or by the solution of sugar-cane concrete, and contains not more than thirty (30) per cent of water and not more than two and five-tenths (2.5) per cent of ash.

3. *Sorghum sirup* is sirup made by the evaporation of sorghum juice or by the solution of sorghum concrete, and contains not more than thirty (30) per cent of water and not more than two and five-tenths (2.5) per cent of ash.

4. *Maple sirup* is sirup made by the evaporation of maple sap or by the solution of maple concrete, and contains not more than thirty-two (32) per cent of water and not less than forty-five-hundredths (0.45) per cent of maple-sirup ash.

5. *Sugar sirup* is the product made by dissolving sugar to the consistence of a sirup, and contains not more than thirty-five (35) per cent of water.

b. GLUCOSE PRODUCTS.

1. *Starch sugar* is the solid product made by hydrolyzing starch or a starch-containing substance until the greater part of the starch is converted into dextrose. Starch sugar appears in commerce in two forms, anhydrous starch sugar and hydrous starch sugar. The former, crystallized without water of crystallization, contains not less than ninety-five (95) per cent of dextrose and not more than eight-tenths (0.8) per cent of ash. The latter, crystallyzed with water of crystallization, is of two varieties—70 sugar, also known as brewers' sugar, contains not less than seventy (70) per cent of dextrose and not more than eight-tenths (0.8) per cent of ash; 80 sugar, climax or acme sugar, contains not less than eighty (80) per cent of dextrose and not more than one and one-half (1.5) per cent of ash.

The ash of all these products consists almost entirely of chlorids and sulphates.

2. *Glucose, mixing glucose, confectioner's glucose,* is a thick, sirupy, colorless product made by incompletely hydrolyzing starch, or a starch-containing substance, and decolorizing and evaporating the product. It varies in density from forty-one (41) to forty-five (45) degrees Baumé at a temperature of 100° Fahr. (37.7° C.), and conforms in density, within these limits, to the degree Baumé it is claimed to show, and for a density of forty-one (41) degrees Baumé contains not more than twenty-one (21) per cent and for a density of forty-five (45) degrees not more than fourteen (14) per cent of water. It contains on a basis of forty-one (41) degrees Baumé not more than one (1) per cent of ash, consisting chiefly of chlorids and sulphates.

c. CANDY.

1. *Candy* is a product made from a saccharine substance or substances with or without the addition of harmless coloring, flavoring, or filling materials, and contains no terra alba, barytes, talc, chrome yellow, or other mineral substances, or poisonous colors or flavors, or other ingredients deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound, or narcotic drug.

d. HONEY.

1. *Honey* is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honey bees (*Apis mellifica* and *A. dorsata*); is lævo-rotatory, contains not more than

twenty-five (25) per cent of water, not more than twenty-five-hundredths (0.25) per cent of ash, and not more than eight (8) per cent of sucrose.

2. *Comb honey* is honey contained in the cells of comb.

3. *Extracted honey* is honey which has been separated from the uncrushed comb by centrifugal force or gravity.

4. *Strained honey* is honey removed from the crushed comb by straining or other means.

D. CONDIMENTS (EXCEPT VINEGAR AND SALT).

a. SPICES.

1. *Spices* are aromatic vegetable substances used for the seasoning of food and from which no portion of any volatile oil or other flavoring principle has been removed, and which are clean, sound, and true to name.

2. *Allspice, pimento,* is the dried fruit of the *Pimenta pimenta* (L.) Karst., and contains not less than eight (8) per cent of quercitannic acid[a]; not more than six (6) per cent of total ash, not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than twenty-five (25) per cent of crude fibre.

3. *Anise* is the fruit of the *Pimpinella anisum* L.

4. *Bay leaf* is the dried leaf of *Laurus nobilis* L.

5. *Capers* are the flower buds of *Capparis spinosa* L.

6. *Caraway* is the fruit of *Carum carvi* L.

CAYENNE AND RED PEPPERS.

7. *Red pepper* is the red, dried, ripe fruit of any species of *Capsicum.*

8. *Cayenne pepper, cayenne,* is the dried ripe fruit of *Capsicum frutescens* L., *Capsicum baccatum* L., or some other small-fruited species of *Capsicum,* and contains not less than fifteen (15) per cent of nonvolatile ether extract; not more than six and five-tenths (6.5) per cent of total ash; not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid; not more than one and five-tenths (1.5) per cent of starch, and not more than twenty-eight (28) per cent of crude fibre.

9. *Paprika* is the dried ripe fruit of *Capsicum annuum* L., or some other large-fruited species of *Capsicum,* excluding seeds and stems.

---

[a] Calculated from the total oxygen absorbed by the aqueous extract.

10. *Celery seed* is the dried fruit of *Apium graveolens* L.

11. *Cinnamon* is the dried bark of any species of the genus *Cinnamomum* from which the outer layers may or may not have been removed.

12. *True cinnamon* is the dried inner bark of *Cinnamomum zeylanicum* Breyne.

13. *Cassia* is the dried bark of various species of *Cinnamomum*, other than *Cinnamomum zeylanicum*, from which the outer layers may or may not have been removed.

14. *Cassia buds* are the dried immature fruit of species of *Cinnamomum*.

15. *Ground cinnamon, ground cassia,* is a powder consisting of cinnamon, cassia, or cassia buds, or a mixture of these spices, and contains not more than six (6) per cent of total ash and not more than two (2) per cent of sand.

16. *Cloves* are the dried flower buds of *Caryophyllus aromaticus* L., which contain not more than five (5) per cent of clove stems; not less than ten (10) per cent of volatile ether extract; not less than twelve (12) per cent of quercitannic acid[a]; not more than eight (8) per cent of total ash; not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fibre.

17. *Coriander* is the dried fruit of *Coriandrum sativum* L.

18. *Cumin seed* is the fruit of *Cuminum cyminum* L.

19. *Dill seed* is the fruit of *Anethum graveolens* L.

20. *Fennel* is the fruit of *Foeniculum foeniculum* (L.) Karst.

21. *Ginger* is the washed and dried or decorticated and dried rhizome of *Zinziber zingiber* (L.) Karst., and contains not less than forty-two (42) per cent of starch; not more than eight (8) per cent of crude fibre, not more than six (6) per cent of total ash, not more than one (1) per cent of lime, and not more than three (3) per cent of ash insoluble in hydrochloric acid.

22. *Limed ginger, bleached ginger,* is whole ginger coated with carbonate of lime, and contains not more than ten (10) per cent of ash, not more than four (4) per cent of carbonate of lime, and conforms in other respects to the standard for ginger.

23. *Horse-radish* is the root of *Roripa armoracia* (L.) Hitchcock, either by itself or ground and mixed with vinegar.

24. *Mace* is the dried arillus of *Myristica fragrans* Houttuyn, and contains not less than twenty (20) nor more than thirty (30) per cent of nonvolatile ether extract, not more than three (3) per cent of total ash, and not more than five-tenths (0.5) per cent of

---

[a] Calculated from the total oxygen absorbed by the aqueous extract.

ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fibre.

25. *Macassar mace, Papua mace,* is the dried arillus of *Myristica argentea* Warb.

26. *Bombay mace* is the dried arillus of *Myristica malabarica* Lamarck.

27. *Marjoram* is the leaf, flower, and branch of *Majorana majorana* (L.) Karst.

28. *Mustard seed* is the seed of *Sinapis alba* L. (white mustard), *Brassica nigra* (L.) Koch (black mustard), or *Brassica juncea* (L.) Cosson (black or brown mustard).

29. *Ground mustard* is a powder made from mustard seed, with or without the removal of the hulls, and a portion of the fixed oil, and contains not more than two and five-tenths (2.5) per cent of starch and not more than eight (8) per cent of total ash.

30. *Prepared mustard, German mustard, French mustard, mustard paste,* is a paste composed of a mixture of ground mustard seed or mustard flour with salt, spices, and vinegar, and, calculated free from water, fat, and salt, contains not more than twenty-four (24) per cent of carbohydrates, calculated as starch, determined according to the official methods, not more than twelve (12) per cent of crude fibre nor less than thirty-five (35) per cent of protein, derived solely from the materials named.

31. *Nutmeg* is the dried seed of the *Myristica fragrans* Houttuyn, deprived of its testa, with or without a thin coating of lime, and contains not less than twenty-five (25) per cent of nonvolatile ether extract, not more than five (5) per cent of total ash, not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fibre.

32. *Macassar nutmeg, Papua nutmeg, male nutmeg, long nutmeg,* is the dried seed of *Myristica argentea* Warb. deprived of its testa.

PEPPER.

33. *Black pepper* is the dried immature berry of *Piper nigrum* L. and contains not less than six (6) per cent of nonvolatile ether extract, not less than twenty-five (25) per cent of starch, not more than seven (7) per cent of total ash, not more than two (2) per cent of ash insoluble in hydrochloric acid, and not more than fifteen (15) per cent of crude fibre. One hundred parts of the nonvolatile ether extract contain not less than three and one-quarter (3.25) parts of nitrogen. *Ground black pepper* is the product made by grinding the entire berry, and contains the several parts of the berry in their normal proportions.

34. *Long pepper* is the dried fruit of *Piper longum* L.

35. *White pepper* is the dried mature berry of *Piper nigrum* L. from which the outer coating, or the outer and inner coatings, have been removed, and contains not less than six (6) per cent of nonvolatile ether extract, not less than fifty (50) per cent of starch, not more than four (4) per cent of total ash, not more than five-tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than five (5) per cent of crude fibre. One hundred parts of the nonvolatile ether extract contain not less than four (4) parts of nitrogen.

36. *Saffron* is the dried stigma of *Crocus sativus* L.

37. *Sage* is the leaf of *Salvia officinalis* L.

38. *Savory, summer savory,* is the leaf, blossom, and branch of *Satureja hortensis* L.

39. *Thyme* is the leaf and tip of blooming branches of *Thymus vulgaris* L.

b. FLAVORING EXTRACTS.

1. *A flavoring extract*[a] is a solution in ethyl alcohol of proper strength of the sapid and odorous principles derived from an aromatic plant, or parts of the plant, with or without its coloring-matter, and conforms in name to the plant used in its preparation.

2. *Almond extract* is the flavoring extract prepared from oil of bitter almonds, free from hydrocyanic acid, and contains not less than one (1) per cent by volume of oil of bitter almonds.

2*a*. *Oil of bitter almonds*, commercial, is the volatile oil obtained from the seed of the bitter almond (*Amygdalus communis* L.), the apricot (*Prunus armeniaca* L.), or the peach (*Amygdalus persica* L.).

3. *Anise extract* is the flavoring extract prepared from oil of anise, and contains not less than three (3) per cent by volume of oil of anise.

3*a*. *Oil of anise* is the volatile oil obtained from the anise seed.

4. *Celery seed extract* is the flavoring extract prepared from celery seed or the oil of celery seed, or both, and contains not less than three-tenths (0.3) per cent by volume of oil of celery seed.

4*a*. *Oil of celery seed* is the volatile oil obtained from celery seed.

5. *Cassia extract* is the flavoring extract prepared from oil of cassia, and contains not less than two (2) per cent by volume of oil of cassia.

---

[a] The flavoring extracts herein described are intended solely for food purposes and are not to be confounded with similar preparations described in the Pharmacopœia for medicinal purposes.

5*a*. *Oil of cassia* is the lead-free volatile oil obtained from the leaves or bark of *Cinnamomum cassia* Bl., and contains not less than seventy-five (75) per cent by weight of cinnamic aldehyde.

6. *Cinnamon extract* is the flavoring extract prepared from oil or cinnamon, and contains not less than two (2) per cent by volume of oil of cinnamon.

6*a*. *Oil of cinnamon* is the lead-free volatile oil obtained from the bark of the Ceylon cinnamon (*Cinnamomum zeylanicum* Breyne), and contains not less than sixty-five (65) per cent by weight of cinnamic aldehyde and not more than ten (10) per cent by weight of eugenol.

7. *Clove extract* is the flavoring extract prepared from oil of cloves, and contains not less than two (2) per cent by volume of oil of cloves.

7*a*. *Oil of cloves* is the lead-free, volatile oil obtained from cloves.

8. *Ginger extract* is the flavoring extract prepared from ginger, and contains in each one hundred (100) cubic centimetres, the alcohol-soluble matters from not less than twenty (20) grams of ginger.

9. *Lemon extract* is the flavoring extract prepared from oil of lemon, or from lemon peel, or both, and contains not less than five (5) per cent by volume of oil of lemon.

9*a*. *Oil of lemon* is the volatile oil obtained, by expression or alcoholic solution, from the fresh peel of the lemon (*Citrus limonum* L.), has an optical rotation (25° C.) of not less than +60° in a 100-millimetre tube, and contains not less than four (4) per cent by weight of citral.

10. *Terpeneless extract of lemon* is the flavoring extract prepared by shaking oil of lemon with dilute alcohol, or by dissolving terpeneless oil of lemon in dilute alcohol, and contains not less than two-tenths (0.2) per cent by weight of citral derived from oil of lemon.

10*a*. *Terpeneless oil of lemon* is oil of lemon from which all or nearly all of the terpenes have been removed.

11. *Nutmeg extract* is the flavoring extract prepared from oil of nutmeg, and contains not less than two (2) per cent by volume of oil of nutmeg.

11*a*. *Oil of nutmeg* is the volatile oil obtained from nutmegs.

12. *Orange extract* is the flavoring extract prepared from oil of orange, or from orange peel, or both, and contains not less than five (5) per cent by volume of oil of orange.

12*a*. *Oil of orange* is the volatile oil obtained, by expression or alcoholic solution, from the fresh peel of the orange (*Citrus au-*

rantium L.) and has an optical rotation (25° C.) of not less than +95° in a 100-millimetre tube.

13. *Terpeneless extract of orange* is the flavoring extract prepared by shaking oil of orange with dilute alcohol, or by dissolving terpeneless oil of orange in dilute alcohol, and corresponds in flavoring strength to orange extract.

13*a*. *Terpeneless oil of orange* is oil of orange from which all or nearly all of the terpenes have been removed.

14. *Peppermint extract* is the flavoring extract prepared from oil of peppermint, or from peppermint, or both, and contains not less than three (3) per cent by volume of oil of peppermint.

14*a*. *Peppermint* is the leaves and flowering tops of *Mentha piperita* L.

14*b*. *Oil of peppermint* is the volatile oil obtained from peppermint, and contains not less than fifty (50) per cent by weight of menthol.

15. *Rose extract* is the flavoring extract prepared from ottar of roses, with or without red rose petals, and contains not less than four-tenths (0.4) per cent by volume of ottar of roses.

15*a*. *Ottar of roses* is the volatile oil obtained from the petals of *Rosa damascena* Mill., *R. centifolia* L., or *R. moschata* Herrm.

16. *Savory extract* is the flavoring extract prepared from oil of savory, of from savory, or both, and contains not less than thirty-five-hundredths (0.35) per cent by volume of oil of savory.

16*a*. *Oil of savory* is the volatile oil obtained from savory.

17. *Spearmint extract* is the flavoring extract prepared from oil of spearmint, or from spearmint, or both, and contains not less than three (3) per cent by volume of oil of spearmint.

17*a*. *Spearmint* is the leaves and flowering tops of *Mentha spicata* L.

17*b*. *Oil of spearmint* is the volatile oil obtained from spearmint.

18. *Star anise extract* is the flavoring extract prepared from oil of star anise, and contains not less than three (3) per cent by volume of oil of star anise.

18*a*. *Oil of star anise* is the volatile oil distilled from the fruit of the star anise (*Illicium verum* Hook).

19. *Sweet basil extract* is the flavoring extract prepared from oil of sweet basil, or from sweet basil, or both, and contains not less than one-tenth (0.1) per cent by volume of oil of sweet basil.

19*a*. *Sweet basil, basil,* is the leaves and tops of *Ocymum basilicum* L.

19*b*. *Oil of sweet basil* is the volatile oil obtained from basil.

20. *Sweet marjoram extract, marjoram extract,* is the flavoring

extract prepared from the oil of marjoram, of from marjoram, or both, and contains not less than one (1) per cent by volume of oil of marjoram.

20*a*. *Oil of marjoram* is the volatile oil obtained from marjoram.

21. *Thyme extract* is the flavoring extract prepared from oil of thyme, or from thyme, or both, and contains not less than two-tenths (0.2) per cent by volume of oil of thyme.

21*a*. *Oil of thyme* is the volatile oil obtained from thyme.

22. *Tonka extract* is the flavoring extract prepared from tonka bean, with or without sugar or glycerin, and contains not less than one-tenth (0.1) per cent by weight of coumarin extracted from the tonka bean, together with a corresponding proportion of the other soluble matters thereof.

22*a*. *Tonka bean* is the seed of *Coumarouna odorata* Aublet (*Dipteryx odorata* [Aubl.] Willd.).

23. *Vanilla extract* is the flavoring extract prepared from vanilla bean, with or without sugar or glycerin, and contains in one hundred (100) cubic centimetres the soluble matters from not less than ten (10) grams of the vanilla bean.

23*a*. *Vanilla bean* is the dried, cured fruit of *Vanilla planifolia* Andrews.

24. *Wintergreen extract* is the flavoring extract prepared from oil of wintergreen, and contains not less than three (3) per cent by volume of oil of wintergreen.

24*a*. *Oil of wintergreen* is the volatile oil distilled from the leaves of the *Gaultheria procumbens* L.

C. EDIBLE VEGETABLE OILS AND FATS.

1. *Olive oil* is the oil obtained from the sound, mature fruit of the cultivated olive-tree (*Olea europœa* L.) and subjected to the usual refining processes; is free from rancidity; has a refractive index (25° C.) not less than one and forty-six hundred and sixty ten-thousandths (1.4660) and not exceeding one and forty-six hundred and eighty ten-thousandths (1.4680); and an iodine number not less than seventy-nine (79) and not exceeding ninety (90).

2. *Virgin olive oil* is olive oil obtained from the first pressing of carefully selected hand-picked olives.

3. *Cotton-seed oil* is the oil obtained from the seeds of cotton plants (*Gossypium hirsutum* L., *G. barbadense* L., or *G. herbaceum* L.) and subjected to the usual refining processes; is free from rancidity; has a refractive index (25° C.) not less than one and forty-seven hundred ten-thousandths (1.4700) and not exceeding one and forty-seven hundred and twenty-five ten-thousandths

(1.4725); and an iodine number not less than one hundred and four (104) and not exceeding one hundred and ten (110).

4. "*Winter-yellow*" *cotton-seed oil* is expressed cotton-seed oil from which a portion of the stearin has been separated by chilling and pressure, and has an iodine number not less than one hundred and ten (110) and not exceeding one hundred and sixteen (116).

5. *Peanut oil, arachis oil, earthnut oil,* is the oil obtained from the peanut (*Arachis hypogæa* L.) and subjected to the usual refining processes; is free from rancidity; has a refractive index of (25° C.) not less than one and forty-six hundred and ninety ten-thousandths (1.4690) and not exceeding one and forty-seven hundred and seven ten-thousandths (1.4707); and an iodine number not less than eighty-seven (87) and not exceeding one hundred (100).

6. "*Cold-drawn*" *peanut oil*[a] is peanut oil obtained by pressure without heating.

7. *Sesame oil, gingili oil, teel oil,* is the oil obtained from the seeds of the sesame plants (*Sesamum orientale* L. and *S. radiatum* Schum. and Thonn.) and subjected to the usual refining processes; is free from rancidity; has a refractive index (25° C.) not less than one and forty-seven hundred and four ten-thousandths (1.4704) and not exceeding one and forty-seven hundred and seventeen ten-thousandths (1.4717); and an iodine number not less than one hundred and three (103) and not exceeding one hundred and twelve (112).

8. "*Cold-drawn*" *sesame oil*[a] is sesame oil obtained by pressure without heating.

9. *Poppy-seed oil*[a] is the oil obtained from the seed of the poppy (*Papaver somniferum* L.) subjected to the usual refining processes and free from rancidity.

10. *White poppy-seed oil,* "*cold-drawn*" *poppy-seed oil,*[a] is poppy-seed oil of the first pressing without heating.

11. *Coconut oil*[a] is the oil obtained from the kernels of the coconut (*Cocos nucifera* L.) and subjected to the usual refining processes and free from rancidity.

12. *Cochin oil* is coconut oil prepared in Cochin (Malabar).

13. *Ceylon oil* is coconut oil prepared in Ceylon.

14. *Copra oil* is coconut oil prepared from copra, the dried kernels of the coconut.

15. *Rape-seed oil, colza oil,*[a] is the oil obtained from the seeds of the rape plant (*Brassica napus* L.) and subjected to the usual refining processes and free from rancidity.

---

[a] The fixing of limits for chemical and physical properties is reserved for future consideration.

16. *"Cold-drawn" rape-seed oil*[a] is rape-seed oil obtained by the first pressing without heating.

17. *Sunflower oil*[a] is the oil obtained from the seeds of the sunflower (*Helianthus annuus* L.) and subjected to the usual refining processes and free from rancidity.

18. *"Cold-drawn" sunflower oil*[a] is sunflower oil obtained by the first pressing without heating.

19. *Maize oil, corn oil*,[a] is the oil obtained from the germ of the maize (*Zea mays* L.) and subjected to the usual refining processes and free from rancidity.

20. *Cocoa butter, cacao butter*, is the fat obtained from roasted, sound cocoa beans, and subjected to the usual refining processes; is free from rancidity; has a refractive index (40° C.) not less than one and forty-five hundred and sixty-six ten-thousandths (1.4566) and not exceeding one and forty-five hundred and ninety-eight ten-thousandths (1.4598); an iodine number not less than thirty-three (33) and not exceeding thirty-eight (38); and a melting-point not lower than 30° C. nor higher than 35° C.

21. *Cotton-seed oil stearin* is the solid product made by chilling cotton-seed oil and separating the solid portion by filtration, with or without pressure, and having an iodine number not less than eighty-five (85) and not more than one hundred (100).

E. Tea, Coffee, and Cocoa Products.

a. TEA.

1. *Tea* is the leaves and leaf buds of different species of *Thea*, prepared by the usual trade processes of fermenting, drying, and firing; meets the provisions of the act of Congress approved March 2, 1897, and the regulations made in conformity therewith (Treasury Department Circular 16, February 6, 1905); conforms in variety and place of production to the name it bears; and contains not less than four (4) nor more than seven (7) per cent of ash.

b. COFFEE.

1. *Coffee* is the seed of *Coffea arabica* L. or *Coffea liberica* Bull., freed from all but a small portion of its spermoderm, and conforms in variety and place of production to the name it bears.

2. *Roasted coffee* is coffee which by the action of heat has become brown and developed its characteristic aroma, and contains

---

[a] The fixing of limits for chemical and physical properties is reserved for further consideration

not less than ten (10) per cent of fat and not less than three (3) per cent of ash.

C. COCOA AND COCOA PRODUCTS.

1. *Cocoa beans* are the seeds of the cacao-tree, *Theobroma cacao* L.

2. *Cocoa nibs, cracked cocoa,* is the roasted, broken cocoa bean freed from its shell or husk.

3. *Chocolate, plain chocolate, bitter chocolate, chocolate liquor, bitter chocolate coatings,* is the solid or plastic mass obtained by grinding cocoa nibs without the removal of fat or other constituents except the germ, and contains not more than three (3) per cent of ash insoluble in water, three and fifty hundredths (3.50) per cent of crude fibre, and nine (9) per cent of starch, and not less than forty-five (45) per cent of cocoa fat.

4. *Sweet chocolate, sweet chocolate coatings,* is chocolate mixed with sugar (sucrose), with or without the addition of cocoa butter, spices, or other flavoring materials, and contains in the sugar and fat-free residue no higher percentage of either ash, fibre, or starch than is found in the sugar- and fat-free residue of chocolate.

5. *Cocoa, powdered cocoa,* is cocoa nibs, with or without the germ, deprived of a portion of its fat and finely pulverized, and contains percentages of ash, crude fibre, and starch corresponding to those in chocolate after correction for fat removed.

6. *Sweet cocoa, sweetened cocoa,* is cocoa mixed with sugar (sucrose), and contains not more than sixty (60) per cent of sugar (sucrose), and in the sugar- and fat-free residue no higher percentage of either ash, crude fibre, or starch than is found in the sugar- and fat-free residue of chocolate.

F. BEVERAGES.

a. FRUIT JUICES—FRESH, SWEET, AND FERMENTED.

1. *Fresh Fruit Juices.*

1. *Fresh fruit juices* are the clean unfermented liquid products obtained by the first pressing of fresh, ripe fruits, and correspond in name to the fruits from which they are obtained.

2. *Apple juice, apple must, sweet cider,* is the fresh fruit juice obtained from apples, the fruit of *Pyrus malus,* has a specific gravity (20° C.) not less than 1.0415 nor greater than 1.0690; and contains in one hundred (100) cubic centimetres (20° C.) not less than six (6) grams, and not more than twenty (20) grams of total sugars, in

terms of reducing sugars, not less than twenty-four (24) centigrams nor more than sixty (60) centigrams of apple ash, which contains not less than fifty (50) per cent of potassium carbonate.

3. *Grape juice, grape must,* is the fresh fruit juice obtained from grapes (*Vitis* species), has a specific gravity (20° C.) not less than 1.0400 and not exceeding 1.1240; and contains in one hundred (100) cubic centimetres (20° C.), not less than seven (7) grams nor more than twenty-eight (28) grams of total sugars, in terms of reducing sugars, not less than twenty (20) centigrams and not more than fifty-five (55) centigrams of grape ash, and not less than fifteen (15) milligrams nor more than seventy (70) milligrams of phosphoric acid (P_2O_5).

4. *Lemon juice* is the fresh fruit juice obtained from lemon, the fruit of *Citrus limonum* Risso, has a specific gravity (20° C.) not less than 1.030 and not greater than 1.040; and contains not less than ten (10) per cent of solids, and not less than seven (7) per cent of citric acid.

5. *Pear juice, pear must, sweet perry,* is the fresh fruit juice obtained from pears, the fruit of *Pyrus communis* or *P. sinensis.*

2. *Sterilized Fruit Juices.*

1. *Sterilized fruit juices* are the products obtained by heating fresh fruit juices sufficiently to kill all the organisms present, and correspond in name to the fruits from which they are obtained.

3. *Concentrated Fruit Juices.*

1. *Concentrated fruit juices* are clean, sound fruit juices from which a considerable portion of the water has been evaporated, and correspond in name to the fruits from which they are obtained.

4. *Sweet Fruit Juices, Sweetened Fruit Juices, Fruit Sirups.*

1. *Sweet fruit juices, sweetened fruit juices, fruit sirups,* are the products obtained by adding sugar (sucrose) to fresh fruit juices, and correspond in name to the fruits from which they are obtained.

2. *Sterilized fruit sirups* are the products obtained by the addition of sugar (sucrose) to fresh fruit juices and heating them sufficiently to kill all the organisms present, and correspond in name to the fruits from which they are obtained.

5. *Fermented Fruit Juices.*

1. *Wine* is the product made by the normal alcoholic fermentation of the juice of sound, ripe grapes, and the usual cellar treat-

ment, and contains not less than seven (7) nor more than sixteen (16) per cent of alcohol, by volume, and, in one hundred (100) cubic centimetres (20° C.), not more than one-tenth (0.1) gram of sodium chlorid nor more than two-tenths (0.2) gram of potassium sulphate; and for red wine not more than fourteen-hundredths (0.14) gram, and for white wine not more than twelve-hundredths (0.12) gram of volatile acids produced by fermentation and calculated as acetic acid. *Red wine* is wine containing the red coloring-matter of the skins of grapes. *White wine* is wine made from white grapes or the expressed fresh juice of other grapes.

2. *Dry wine* is wine in which the fermentation of the sugars is practically complete and which contains, in one hundred (100) cubic centimetres (20° C.), less than one (1) gram of sugars and for dry red wine not less than sixteen-hundredths (0.16) gram of grape ash and not less than one and six-tenths (1.6) grams of sugar-free grape solids, and for dry white wine not less than thirteen-hundredths (0.13) gram of grape ash and not less than one and four-tenths (1.4) grams of sugar-free grape solids.

3. *Fortified dry wine* is dry wine to which brandy has been added, but which conforms in all other particulars to the standard of dry wine.

4. *Sweet wine* is wine in which the alcoholic fermentation has been arrested, and which contains, in one hundred (100) cubic centimetres (20° C.), not less than one (1) gram of sugars, and for sweet red wine not less than sixteen-hundredths (0.16) gram of grape ash, and for sweet white wine not less than thirteen-hundredths (0.13) gram of grape ash.

5. *Fortified sweet wine* is sweet wine to which wine spirits have been added. By act of Congress, "sweet wine" used for making fortified sweet wine and "wine spirits" used for such fortification are defined as follows (sec. 43, Act of October 1, 1890, 26 Stat., 567, as amended by section 68, Act of August 27, 1894, 28 Stat., 509, and further amended by Act of Congress approved June 7, 1906): "That the wine spirits mentioned in section 42 of this act is the product resulting from the distillation of fermented grape juice to which water may have been added prior to, during, or after fermentation, for the sole purpose of facilitating the fermentation and economical distillation thereof, and shall be held to include the products from grapes or their residues, commonly known as grape brandy; and the pure sweet wine, which may be fortified free of tax, as provided in said section, is fermented grape juice only, and shall contain no other substance whatever introduced before, at the time of, or after fermentation, except as herein ex-

pressly provided; and such sweet wine shall contain not less than four (4) per centum of saccharine matter, which saccharine strength may be determined by testing with Balling's saccharometer or must scale, such sweet wine, after the evaporation of the spirits contained therein, and restoring the sample tested to original volume by addition of water: *Provided*, That the addition of pure boiled or condensed grape must or pure crystallized cane or beet sugar or pure anhydrous sugar to the pure grape juice aforesaid, or the fermented product of such grape juice prior to the fortification provided by this Act for the sole purpose of perfecting sweet wine according to commercial standard, or the addition of water in such quantities only as may be necessary in the mechanical operation of grape conveyers, crushers, and pipes leading to fermenting tanks, shall not be excluded by the definition of pure sweet wine aforesaid: *Provided, however*, That the cane or beet sugar, or pure anhydrous sugar, or water, so used shall not in either case be in excess of ten (10) per centum of the weight of the wine to be fortified under this Act: *And provided further*, That the addition of water herein authorized shall be under such regulations and limitations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may from time to time prescribe; but in no case shall such wines to which water has been added be eligible for fortification under the provisions of this Act where the same, after fermentation and before fortification, have an alcoholic strength of less than five (5) per centum of their volume."

6. *Sparkling wine* is wine in which the after-part of the fermentation is completed in the bottle, the sediment being disgorged and its place supplied by wine or sugar liquor, and which contains, in one hundred (100) cubic centimetres (20° C.), not less than twelve-hundredths (0.12) gram of grape ash.

7. *Modified wine, ameliorated wine, corrected wine*, is the product made by the alcoholic fermentation, with the usual cellar treatment, of a mixture of the juice of sound, ripe grapes with sugar (sucrose), or a sirup containing not less than sixty-five (65) per cent of sugar (sucrose), and in quantity not more than enough to raise the alcoholic strength after fermentation to eleven (11) per cent by volume.

8. *Raisin wine* is the product made by the alcoholic fermentation of an infusion of dried or evaporated grapes, or of a mixture of such infusion or of raisins with grape juice.

9. *Cider, hard cider*, is the product made by the normal alcoholic fermentation of apple juice, and the usual cellar treatment, and contains not more than seven (7) per cent by volume of alco-

hol, and, in one hundred (100) cubic centimetres of the cider, not less than two (2) grams nor more than twelve (12) grams of solids, not more than eight (8) grams of sugars, in terms of reducing sugars, and not less than twenty (20) centigrams nor more than forty (40) centigrams of cider ash.

10. *Sparkling cider, champagne cider*, is cider in which the after-part of the fermentation is completed in closed containers, with or without the addition of cider or sugar liquor, and contains, in one hundred (100) cubic centimetres, not less than twenty (20) centigrams of cider ash.

b. MEAD, ROOT BEER, ETC.

(Schedule in preparation.)

c. MALT LIQUORS.

(Schedule in preparation.)

d. SPIRITUOUS LIQUORS.

1. *Distilled spirit* is the distillate obtained from a fermented mash of cereals, molasses, sugars, fruits, or other starch- or sugar-bearing substances, and contains all the condensed products of the fermentation volatile at the usual temperature of distillation.

2. *Rectified spirit* is distilled spirit which at the time of, or subsequent to distillation is subjected to a rectifying process by means of which a part of the volatile products of the distillation is separated from the ethyl alcohol therein.

3. *Alcohol, cologne spirit, neutral spirit, velvet spirit*, or *silent spirit* is distilled spirit from which all, or nearly all, its constituents are separated, except ethyl alcohol and water, and contains not less than ninety-four and nine-tenths (94.9) per cent (189.8 proof) by volume of ethyl alcohol.

4. *New whiskey* is the distilled spirit from the properly fermented mash of malted cereals, or cereals the starch of which has been hydrolyzed by malt, is of an alcoholic strength corresponding to the excise laws of the various countries in which it is made, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than ninety (90) nor more than two hundred and twenty-five (225) grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than fifteen (15) nor more than one hundred (100) grams of ethers (as acetic ether), not less than two (2) nor more than twenty-five (25) grams of volatile acids

(as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

5. *Whiskey* (*potable whiskey*) is new whiskey which has been stored in wood for not less than four (4) years and mixed only with pure water at the time of its preparation for consumption, and contains, unless otherwise prescribed by law, not less than forty-five (45) per cent of ethyl alcohol by volume, and the relative quantities of secondary products to ethyl alcohol corresponding to the varieties of whiskey under six (6) to fifteen (15), inclusive.

6. *Rye whiskey* is whiskey in the manufacture of which rye is the principal cereal used, and contains not less than two hundred (200) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehydes, not less than forty (40) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty (30) nor more than eighty-five (85) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

7. *Bourbon whiskey* is whiskey in which Indian corn (maize) is the principal cereal used, and contains not less than two hundred (200) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehydes, not less than forty (40) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty (30) nor more than eighty-five (85) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

8. *Corn whiskey* is whiskey made from maize (Indian corn), the starch of which has been hydrolyzed by malting or by the action of barley malt, and contains the proportions of the various ingredients specified for bourbon whiskey.

9. *Arrack* is distilled spirit made from rice.

10. *Blended whiskey* is a mixture of two or more whiskeys, and contains the relative quantities of secondary products to ethyl alcohol of the varieties of whiskey forming the blend.

11. *Rectified new whiskey* is new whiskey deprived of a part of its secondary volatile products, and contains not less than sixty (60) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than forty (40) grams of fusel oil

(higher alcohols as amylic), not more than eight (8) grams of aldehydes, not less than five (5) grams of ethers (as acetic ether), not less than one (1) gram of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent of ethyl alcohol by volume).

12. *Rectified whiskey* is rectified new whiskey, stored in wood not less than three (3) years, except where otherwise prescribed by law, and contains not less than one hundred (100) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than fifty (50) grams of fusel oil (higher alcohols as amylic), not more than ten (10) grams of aldehydes, not less than twenty (20) grams of ethers (as acetic ether), not less than fifteen (15) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

13. *Scotch new whiskey* is whiskey made in Scotland solely from barley malt in the drying of which over burning peat a smoky or peaty flavor is imparted to the product, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary product of distillation congeneric with ethyl alcohol, not less than ninety (90) nor more than two hundred and twenty-five (225) grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than fifteen (15) nor more than one hundred (100) grams of ethers (as acetic ether), not less than two (2) nor more than twenty-five (25) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

14. *Scotch whiskey* is Scotch new whiskey which has been stored in wood for not less than four (4) years and mixed only with pure water at the time of its preparation for consumption, and contains not less than one hundred and fifty (150) nor more than four hundred and fifty (450) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehyde, not less than twenty-five (25) nor more than one hundred and twenty-five (125) grams of ethers (as acetic ether), not less than ten (10) nor more than forty (40) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

15. *Irish new whiskey* is whiskey made in Ireland either from barley malt, or malt and unmalted barley, or other cereals, and contains not less than one hundred and twenty-five (125) nor more

than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than ninety (90) nor more than two hundred and twenty-five (225) grams of fusel oil (higher alcohols as amylic), not more than (20) grams of aldehydes, not less than fifteen (15) nor more than one hundred (100) grams of ethers (as acetic ether), not less than two (2) nor more than twenty-five (25) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

16. *Irish whiskey* is Irish new whiskey which has been stored in wood for not less than four (4) years and mixed only with pure water at the time of its preparation for consumption, and contains not less than one hundred and fifty (150) nor more than four hundred and fifty (450) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehydes, not less than twenty-five (25) nor more than one hundred and twenty-five (125) grams of ethers (as acetic ether), not less than ten (10) nor more than forty (40) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

17. *New rum* is distilled spirit made from the fermented juice of the sugar cane, the massecuite made therefrom, molasses from the massecuite or any intermediate product save sugar, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than sixty (60) nor more than one hundred and fifty (150) grams of fusel oil (higher alcohols as amylic), not more than thirty (30) grams of aldehydes, not less than thirty (30) nor more than one hundred (100) grams of ethers (as acetic ether), not less than twenty (20) nor more than fifty (50) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

18. *Rum* is new rum stored not less than four (4) years in wood, and contains not less than one hundred and seventy-five (175) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than eighty (80) nor more than two hundred (200) grams of fusel oil (higher alcohols as amylic), not more than forty (40) grams of aldehydes, not less than fifty (50) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty-

five (35) nor more than one hundred (100) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

19. *New brandy* is a distilled spirit made from sound potable wine, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than seventy (70) nor more than one hundred and fifty (150) grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than thirty (30) nor more than one hundred (100) grams of ethers (as acetic ether), not less than five (5) nor more than twenty (20) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

20. *Brandy* is new brandy stored in wood for not less than four (4) years, and contains not less than one hundred and fifty (150) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than eighty (80) nor more than two hundred (200) grams of fusel oil (higher alcohols as amylic), not more than thirty (30) grams of aldehydes, not less than thirty-five (35) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty (30) nor more than one hundred (100) grams of volatile acids (as acetic) to one hundred (100) litres of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

21. *Cognac* is brandy prepared in the departments of the Charente, France, from pure, sound wine produced in those departments.

e. CARBONATED WATERS, ETC.

(Schedule in preparation.)

G. Vinegar.

1. *Vinegar, cider vinegar, apple vinegar,* is the product made by the alcoholic and subsequent acetous fermentations of the juice of apples, is lævo-rotatory, and contains not less than four (4) grams of acetic acid, not less than one and six-tenths (1.6) grams of apple solids, of which not more than fifty (50) per cent are reducing sugars, and not less than twenty-five-hundredths (0.25) gram of apple ash in one hundred (100) cubic centimetres (20° C.); and the water-soluble ash from one hundred (100) cubic centimetres (20° C.) of the vinegar contains not less than ten (10) milligrams of phosphoric acid (P_2O_5), and requires not less than thirty

(30) cubic centimetres of decinormal acid to neutralize its alkalinity.

2. *Wine vinegar, grape vinegar,* is the product made by the alcoholic and subsequent acetous fermentations of the juice of grapes, and contains, in one hundred (100) cubic centimetres (20° C.), not less than four (4) grams of acetic acid, not less than one (1.0) gram of grape solids, and not less than thirteen-hundredths (0.13) gram of grape ash.

3. *Malt vinegar* is the product made by the alcoholic and subsequent acetous fermentations, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt, is dextro-rotatory, and contains, in one hundred (100) cubic centimetres (20° C.), not less than four (4) grams of acetic acid, not less than two (2) grams of solids, and not less than two-tenths (0.2) gram of ash; and the water-soluble ash from one hundred (100) cubic centimetres (20° C.) of the vinegar contains not less than nine (9) milligrams of phosphoric acid (P_2O_5), and requires not less than four (4) cubic centimetres of decinormal acid to neutralize its alkalinity.

4. *Sugar vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of sugar, sirup, molasses, or refiners' sirup, and contains, in one hundred (100) cubic centimetres (20° C.), not less than four (4) grams of acetic acid.

5. *Glucose vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of starch sugar or glucose, is dextro-rotatory, and contains, in one hundred (100) cubic centimetres (20° C.), not less than four (4) grams of acetic acid.

6. *Spirit vinegar, distilled vinegar, grain vinegar,* is the product made by the acetous fermentation of dilute distilled alcohol, and contains, in one hundred (100) cubic centimetres (20° C.), not less than four (4) grams of acetic acid.

III. SALT.

1. *Table salt, dairy salt,* is fine-grained crystalline salt containing on a water-free basis, not more than one and four-tenths, (1.4) per cent of calcium sulphate ($CaSO_4$), nor more than five-tenths (0.5) per cent of calcium and magnesium chlorids ($CaCl_2$ and $MgCl_2$), nor more than one-tenth (0.1) per cent of matters insoluble in water.

IV. PRESERVATIVES AND COLORING-MATTERS.

Standard preservatives are salt, sugar, vinegar, spices and their essential oils, wood smoke, edible oils and fats, and alcohol.

The use, in food products, of any other preservatives or antiseptic, or of any substance which preserves or enhances the natural color of a food product, or of a coloring-matter, should not be permitted:

1st. If it is poisonous or injurious to health, under the conditions of its use in foods.

Among such substances are fluorids, beta-naphthol, formaldehyde, salts of copper, salicylic acid and its salts, boric acid and its salts, sulphurous acid and its salts, benzoic acid and its salts.

2d. If it has not been proved beyond reasonable doubt by scientific investigation to be harmless to health. Among such substances are abrastol and saccharin.

3d. If it conceals in any way inferiority of the product or counterfeits or enhances a natural color.

Mr. Emery: I move that the report of the Committee on Food Standards, as just read by Dr. Fischer, be adopted by this Association.

Mr. Allen: I would like to amend that motion so that the committee, as at present constituted, be continued.

Mr. Emery: Yes.

Mr. Burke, of Wyoming: It seems to me that Mr. Fulmer does not take much interest in that committee and the West wants a representative on the committee. I move that Professor Shepard be appointed on it in place of Mr. Fulmer, of Washington.

President Ladd: That motion is not in order at the present time.

Mr. Emery: I understood in making the motion as I did that that motion carried with it the adoption of the standards as reported by the committee.

President Ladd: Yes, it would. Is there any further discussion on this matter? If not, the motion should be seconded.

Motion was seconded and unanimously carried.

Mr. Burke: Then would it be in order now to put the motion I spoke of before?

Mr. Emery: I raise a point of order on this. My impression was that the President of this Association should appoint that committee. I may be misinformed, but this is my impression. The committee continues, but not necessarily the present personnel of the committee.

Dr. Scovell: Mr. Fulmer has met with us every time except this time and he has met with the committee every time. I suppose something unavoidable has detained him this time from coming to the Convention.

Mr. Burke: You say he has been with you every time the committee has met? Well, I didn't know that. But he isn't here now.

Dr. Frear: It may be that Mr. Burke misunderstands this situation a little. Mr. Fulmer has taken great interest in the work and has been of great assistance to the committee in its work. Evidently he has not been able to attend this meeting, but he is a long distance away and it may be he had personal demands upon his time that prevented his coming so far just now.

Mr. Burke: He is no better than I am and I came just as far as he would have to. The Northwest is entitled to have a man on that committee. I don't wish to say anything against anybody, but I think Professor Shepard would be a good man on that committee and I thought he would be better able to attend the meetings than Professor Fulmer.

President Ladd: What is the wish of the Association?

Mr. Emery: I think no restrictions should be put upon the powers of the President of this Association to appoint the committee.

President Ladd: Well, we will pass on through our programme. We were to have had a paper on "Some Agreed Principles upon Which to Base Uniformity," by Hon. J. B. Noble, State Dairy and Food Commissioner, Hartford, Conn. It seems, though, that Commissioner Noble left early this morning and unless he left his paper with somebody to read, we will have to pass over that number.

(The paper was not read at the Convention, but was sent in subsequently and is printed herewith.)

PRINCIPLES OF UNIFORMITY IN PURE-FOOD LAWS

By Hon. J. B. Noble, State Dairy and Food Commissioner, Connecticut.

Mr. President and gentlemen of the Association: Within the last few years there has been a great advance in thought and activity in the pure-food work of our country. Our pure-food laws have been placed upon the statutes of the various States to stay, and the only alteration that will be asked for will be that they should be made stronger and lasting.

We now have, not only laws in many of the States regulating the manufacture and sale of food products, but we have the people of the various States heartily supporting them, who are anxious to have them faithfully and honestly administered.

When the necessity for regulation of the sale of food products was first brought to the attention of the people in the various States, bills were draughted and laws passed in accordance with the best knowledge and information they had, each State acting for itself and working according to its own light; and many times there was quite a difference in the various laws passed. Wholesalers and manufacturers were all opposed to these measures, but as the searchlight of investigation was turned on the working of these laws, not only did the people begin to see more and more their usefulness and the benefits to be derived from their administration, but also in time the wholesale dealers and manufacturers of food products in the different States saw that their business would be helped by the effectiveness of these laws, and they in turn can be counted among the hearty supporters.

One great reason for the opposition of these pure-food laws by the manufacturers was that the laws of the different States were not in accord with each other, and it entailed hardships, many times, in their meeting the requirements of these laws.

The dairy and food commissioners of many of the States, seeing some of the difficulties before them, early became advocates of a National pure food-law, which would not only strengthen our various State laws, but would also form a foundation upon which these could be built or amended and made more uniform in their provisions.

Uniformity of purpose, and uniformity of action, is one of the great bulwarks upon which the different commissioners can hope to achieve their greatest success. In the administration of the laws in the various States, there are some principles of uniformity upon which we believe every commissioner can earnestly and conscientiously stand. We must all agree that no ingredient should be allowed to form a part of any food product which is unmistakably and undeniably poisonous or injurious to health. We believe that all food products containing said ingredients should be debarred from the market, if they contain such ingredients in any measurable quantity; or, if they are found at all, they should be plainly stated on the label, together with the amount.

We believe that the time is soon coming when artificially-colored food products will not be allowed to be sold; and that they will not be called for or accepted by consumers. The National law allows harmless coloring and flavoring ingredients to be used only for the purpose of coloring or flavoring. We believe that, with advanced education of consumers in general, colored food products will find little or no sale.

Manufacturers put forth as a reason for the use of coloring that articles are more uniform in appearance and consequently more pleasing to the consumers. They argue that the small amount of coloring-matter used can make little difference and can harm no one. This may be true. It is not alone the small amount of harmless coloring-matter that enters into the composition of this food product, but it is the underlying principle of deception which we should oppose.

Deception in the sale of any food product is wrong. We are all well aware that the idea of having all food products sold for just what they are has taken a strong hold on the public mind, and is obtaining more and more each year. Every consumer has the right to know just what he is purchasing; and, while coloring-matter is used sometimes with no harm and with no other object than for coloring, we may rest assured that in a good many instances inferiority is concealed, and that by the use of coloring the goods are made to appear better than they really are.

We believe that we should all stand upon the high ground that all food products should stand on their merits, uncolored. One of the great works of this Association is to bring about uniformity of principles in the labelling of food products. We all know that our large manufacturers are sending food products to nearly every State in the Union, and it is not right or fair or just that they should be obliged to put on different labels for the various States.

In accordance with the principles of the National law we can all agree that all food products should be plainly and distinctly labelled in such a way that there is no deception in their sale. The public is demanding this, and every commissioner has solid ground to stand upon, and public opinion will support him in standing by this principle; it should be for the interest of all concerned that there should be some uniform rulings or decisions regarding the use of antiseptics and preservatives.

In some food products we believe that in no case should they be allowed, and never when we are convinced that their use endangers the health of the consumer: and if in any case they are used, it should be plainly stated on the enclosed package just what is used and the amount.

Fellow members of the Association, the pure-food work of our country has assumed great proportions. Its importance is increasing more and more each year. The people are more and more alive to its importance and are ready to support a fair and honest administration of the laws. It should be the aim of each one to strengthen this work in our administration of the laws, strive to be just as well as strict.

Many of the leading dealers of our country are with us, who wish to live up to all the requirements of the pure-food laws. They can be of great help to us, and it is wrong—in any State—to allow *unjust* competition to interfere with their business. We believe that our work can be made much more effective when we see the commissioners of all States working along uniform lines and upon uniform principles.

Different questions may meet different commissioners, and different competitions may arise in different States; but we can all stand upon the uniform principles of fighting deception in every form, and giving consumers and honest manufacturers a "square deal."

President Ladd: I will next announce the Press Committee, and, if I understand correctly, it is to continue this year and until the next Convention.

The Committee is as follows:

Mr. Kracke, New York.
Mr. R. M. Allen, Kentucky.
Mr. Schuknecht, Illinois.

We have now had all the papers on the programme.

Mr. Kracke: In order to go over the report of the proceedings of the last four days, I would therefore move that the officers of this Association be made an editing committee.

President Ladd: Any remarks on that?

Motion seconded and carried.

President Ladd: Are there any reports of committees?

Mr. Jones: I move that printers' proof of the remarks and papers be submitted to their authors before the same are published.

Motion seconded and unanimously carried.

Dr. Irion: In discussing that Committee on Standards, it occurred to me that it would be a good thing to increase its membership. It is one of the most important committees of this Association, and that work is very important work; and I think it would be a good idea to increase it from five to nine, so that more States might be represented. We have no representative on that committee and we would like to be represented. I don't believe in having too large committees in general, but in an important committee of that kind all parts of the country should be represented. I would like to hear that matter discussed.

Mr. Allen, of Kentucky: The present form of the Food-

Standards Committee was arranged for by resolution at the Hartford meeting last year. I do not think Dr. Irion was present when the resolution respecting the committee went through. As you know, for a number of years there were two independent Food-Standards Committees, one from this Association and one from the Association of Official Agricultural Chemists. The Secretary of Agriculture under an act of Congress selected the committee from the A. O. A. C. to advise him. The act also empowered him to select other experts in addition to the committee from the A. O. A. C., and in order to bring about uniformity between that committee and the committee from this Association a resolution was passed last year that a Food-Standards Committee of five be appointed from the Association of Food and Dairy Departments, and that there be appointed on this committee two of the members of the A. O. A. C. Committee, who by reason of their State positions were also members of this Association, and that the Secretary of Agriculture be asked to appoint a joint committee so formed as experts for the purpose of collaborating food standards. The Secretary of Agriculture agreed to this resolution and so appointed the committee and continued it until the provision in the appropriation for his Department authorizing the committee was stricken out by objection in the House.

The number of our committee was limited last year to five because it was understood that the Secretary of Agriculture wished the number limited on account of the expense. This Association should ask the Secretary of Agriculture to provide some means for the continuance of this committee, and in doing this it would be best to seek a continuance under the plan to which the Secretary formerly agreed. It would, therefore, be to the best interest of this Association at the present time to leave the number of the Standards Committee just as it now is.

The Standards Committee is doing a large and important work, and there is no doubt but that this work could be facilitated by the addition of other members. Such men as Professor Shepard, Dr. Winton, Dr. Bigelow, Professor Doolittle, Professor Hortvet, Prof. W. M. Allen, Dr. Leach, Chairman Ladd, and others are actively in touch with the committee, and I hope that an expense fund will be provided to include all of the leading State and Federal analysts as active working members of the committee. All of the gentlemen whom I have named are good, solid rocks in the pure-food work, and each and every one of them can be absolutely depended upon to find and stick by the facts in each issue.

DR. IRION: I didn't understand that. If such is the situation, I am perfectly satisfied to leave the committee as it is.

MR. JONES, of Illinois: I did not get here until Tuesday and not in time for the meeting of that day, so I did not read the paper I had prepared, but I would like to have it go into the report as of that day.

DR. SCOVELL: I move he be requested to read it.

MR. JONES: I haven't it here. It is up in my room. You all know my position, anyway. I am heartily in accord with the enforcement of the National Food Law, and in Illinois I think we have even a better law than the National Law. It is a little more stringent, and I think we will be able to co-operate very nicely with the National authorities. Dr. Winton, the head of the Chicago laboratory of the U. S. Bureau of Chemistry, is located in the Manhattan Building on the north side of the sixteenth floor and we are on the south side of the same floor, and consequently we are fixed to co-operate with each other. I think that we will get along very nicely. It will be some time before Dr. Winton gets the Government Office and Laboratory fitted out, but he will have it going very soon and then we will be in very good shape to co-operate, and a year from now we will be able to make a full report of the co-operative work we have done.

MR. SCOVELL: Over the bar, did you say?

MR. JONES: Yes. Oh, Commissioner Bird and Dr. Scovell are from Missouri and "have to be shown." It has been said that this has been one of the best meetings this Association has ever had, and when I look back eight years and remember that only a few States were organized in this work, and that there was no National law and very little attention was paid to these Conventions, and when I think of what we have been able to accomplish, I can congratulate this Association, its officials, and its members upon what has been accomplished by them. We have gotten out splendid annual reports. Every one has been well pleased with this meeting and the work of the officers, and I could not be pleased better than with the officers we have elected this time. They are all capable and efficient men and they understand their duties. The National food authorities have done well, too. They have gotten along better than I expected them to, in fact. They are striving hard and they have a great work to accomplish. In Illinois we have draughted our food law along the same line as the National food law. We have taken in all the good features and added some more. A year from now I would like to prepare a paper on co-operation between the State and National authorities, provided it is as harmonious and goes along as nicely as I expect it will.

PROFESSOR SHEPARD: Don't forget to define the word "only." Illinois owns the word "only."

MR. JONES: Certainly. In Illinois we are against a pretty hard proposition. But we got a better law than I hoped to get this time. We have 5,000,000 people. It is one of the first food-producing States in the Union. We have more money invested in live stock than any other State. We have as many food manufacturing concerns and dairies, not quite as many creameries; in fact, we have a proposition that is hard to manage. The adulterators of food are strongly entrenched and they have their representatives at the Legislature looking after things, and they look after them pretty well, too. And so, while we may not have secured quite as good a law as we wanted, still we are pretty well pleased with the outcome. We can tell better how it is when it is tested in the courts, but I think the law is all right. We feel we are in as good a position to co-operate with the National food authorities as we could well be, and I am going to prepare my next paper along that line, that is, a report of our work.

MISS LAKEY: I want to ask the Commissioners if they will do as I requested yesterday and tell us what we can do to help in this work. It has been very interesting to see how all the papers read here have held the consumer up as being responsible for so much. Well, we want material to help us in our work, and if the chemists would only supply us with their literature we would do all in our power to get it before the public. They need information. We represent the National Consumers' League of the United States and we wish to have as much information from the State and National officials as we can possibly get; and I do assure you, gentlemen, that our committee stands pledged to do everything within its power to uphold you in your work, but we must have information. We want to know what is being done in each State. Supply us with all the information you have and we will be grateful.

President Ladd: Are there any reports from committees?

Mr. Emery: The Committee on Resolutions has prepared its report. In view of two papers which were read here yesterday afternoon, one representing a certain manufacturing establishment which claimed that the use of antiseptics and artificial coloring-matter in food products is not a necessity and then the other paper by a gentleman representing a firm using these things, and in that paper we got a strenuous plea that certain products are much better if so preserved, I couldn't help thinking that these manufacturers who are building up their industries upon chemical preservatives might be likened to the foolish man who built his house upon the sand,—"And the rain descended and the floods came, and the winds blew and beat upon that house; and it fell; and great was the fall of it." But those manufacturers of foods who have built up their industries upon purity of products may be likened unto the wise man who built his house upon a rock: "And the rains descended, and the floods came and the winds blew and beat upon that house; and it fell not: for it was founded upon a rock."

Professor Shepard: You forgot to state that when his house fell the foolish man entered a protest claiming his "business had been injured." (Laughter.)

Mr. Emery: Well, you didn't forget to insert it. Now I'll read the report of the Committee on Resolutions.

Mr. Emery: Mr. President, members of the Association: Your Committee on Resolutions respectfully submits the following:

RESOLUTIONS.

Whereas, The work organized by the joint Committee on Standards of this Association and the A. O. A. C., bringing together as it does the united experience of State and National food experts, and affording to the trade a full opportunity for suggestion and criticism, best meets our approval as broadly representative of the united judgment of responsible officials and of trade interests. And, *Whereas*, The Secretary of Agriculture has been given full authority under the Foods and Drugs Act to recognize these committees; therefore, be it

Resolved, That the Secretary of Agriculture be urgently requested to use all reasonable efforts to secure funds to enable him to make use of the aforesaid authority.

Resolved, That the abuse which has grown up under the guaranty clause of the National Foods and Drugs Act whereby it is made to appear in many cases that the National Government guarantees the purity of the food products, calls for correction.

Resolved, That this Association reiterates the necessity for closest co-operation between the State and the National Government in the enforcement of pure-food laws, to the end that a system of legislation enacted in the States under their police powers, and by the National Congress under power given to regulate interstate commerce, shall not come into conflict, and to the end that the joint knowledge and experience of State and Federal officials may be brought to bear in the consideration of the many technical and practical questions arising in the enforcement of food laws.

Resolved, That the existing unity of sentiment, purpose, and efforts between the State and National authorities meets our approval and is cause for felicitation, and we bespeak the continuance of this hearty co-operation as mutually advantageous. And, *Resolved* further, That we strongly favor such uniformity in National and State food laws as can be made to comprise the strongest and most vigorous features of present State and National laws enacted for the purpose and with the effect of protecting the consuming public against adulteration and fraud, and without imposing any hardship on the trade not necessary to the accomplishment of that purpose; but we as strongly oppose that uniformity in National and State food laws which comes only to relieve the trade from hardship by writing into those laws the weakest and least effective features of present laws, and "such cunning ingenuity" that while bearing a fair countenance, they carry the elements of disaster in the courts and to the consuming public.

Resolved, That sanitary inspection should be extended to include small slaughter-houses, small poultry and killing-houses, creameries, cheese factories, dairy farms, milk depots, ice-cream factories, restaurants, hotels, groceries and meat markets, and all other places where food is produced, manufactured, stored, or offered for sale, and that such inspection should include the sanitary condition of the buildings and utensils, herds, workmen and their clothing, and the condition of the raw material and the finished product.

Resolved, That the use of mechanical carriers and other devices to obviate the necessity for handling the food products should be encouraged.

Resolved, That this Association hereby tenders its thanks to its officers and its Executive Committee for the splendid programme provided for this our annual meeting, and also the officers of this Association for the kind, courteous and efficient manner in which they have discharged their duties. And this Association sends cordial greeting to Horace Ankeney, of Ohio, our retiring President.

Respectfully submitted,

J. Q. Emery,
M. A. Scovell,
A. H. Jones,
R. W. Dunlap,
W. D. Bigelow.

PRESIDENT LADD: You have heard the report of the Committee on Resolutions. What is the wish of the Convention?

MR. EMERY: I move the adoption of this report.

Motion was seconded and carried.

DR. IRION: I move that the thanks of this Association go to that committee for the able report they have made.

Motion was seconded and unanimously carried.

MR. BIRD: Just one word with respect to the meeting to be held a year from now. I wish to ask you to bring your wives. The people of Sault Ste. Marie and Michigan generally will arrange special entertainment for the ladies of the party and they will see that they have a good time, retire early, and sleep soundly. (Laughter.)

MR. BURKE: I move that if a change is to be made in the Standards Committee, Professor Shepard's name be considered.

DR. FREAR: Seconded.

PRESIDENT LADD: If any changes are to be made—

MR. JONES: I rise to a point of order. Is not that motion out of order? I do not think we ought to curtail the powers invested in the President of this Association. I don't say anything against Professor Shepard. I like him. He may be the best friend I've got on earth, so far as I know, but I don't think a motion like this is in order.

MR. BURKE: I think the Northwest ought to have an active member on that committee, and in the event of there being any change made I'd like Professor Shepard to be considered.

DR. IRION: I was going to rise to the same point of order, made by Mr. Jones, and I agree with him fully in what he has said. I would be glad personally, to see Professor Shepard on the committee, but I am opposed to establishing such a precedent as is contemplated in the motion.

MR. JONES: The gentleman from New Orleans is right. I don't think myself there could be a more worthy light on that committee than Professor Shepard.

MR. EMERY: I want to say that the motion is unnecessary, because I know that if any changes are made, the President couldn't do otherwise than consider Professor Shepard. I understand it is part of the rules that the President is to reappoint a Standards Committee.

Dr. Scovell: I am not certain but that that committee is a permanent one. In regard to Mr. Fulmer, if he can't attend the meetings he will resign.

President Ladd: The committee was a permanent one until discharged from duty or the members resign.

Mr. Emery: I am personally sure that Professor Shepard and his friends, whom we all are, can't feel that any inaction on our part has been due to any lack of appreciation of his ability.

President Ladd: The motion was simply out of order.

Dr. Scovell: Mr. Fulmer may be sick, and I think we ought to recognize the fact that he has always been here before. We don't know why he isn't here this time, but I am sure he has some very good reason.

Mr. Burke: I seem to have accomplished the purpose anyway. I withdraw my motion. I simply wanted to put Professor Shepard's name before the President so that he might be considered in case there was a change made on that committee.

President Ladd: If the business of the Convention is finished, a motion to adjourn is in order.

Mr. Emery: I move we adjourn.

The motion was seconded.

President Ladd: The Convention stands adjourned *sine die.*

MEMBERS OF THE ASSOCIATION OF STATE AND NATIONAL FOOD AND DAIRY DEPARTMENTS IN ATTENDANCE.

Colorado.

Hon. B. G. D. Bishopp, State Dairy Commissioner, Denver.

Connecticut.

Hon. J. B. Noble, Commissioner, Hartford.

Dr. E. H. Jenkins, Director, Agricultural Experiment Station and State Analyst, New Haven.

Hon. R. O. Eaton, Deputy Commissioner, Hartford.

Gen. H. O. Averill, State Cattle Commissioner, Hartford.

Illinois.

Hon. Alfred H. Jones, State Food Commissioner, Robinson.

Dr. T. J. Bryan, State Chemist, Chicago.

Mr. T. J. Nehls, Assistant Chemist, Chicago.

Indiana.

Prof. H. E. Barnard, Food and Drug Commissioner and Chemist, State Board of Health, Indianapolis.

Kansas.

Dr. S. J. Crumbine, Chief Food Inspector and Secretary, State Board of Health, Topeka.

Prof. E. H. S. Bailey, Chemist, State Board of Health, Lawrence.

Kentucky.

Dr. M. A. Scovell, Director, Kentucky Experiment Station and member of Food-Standards Committee of the Association of Official Agricultural Chemists, Lexington.

Mr. R. M. Allen, Head, Division State Food Inspection, Food Division, Kentucky Experiment Station, and Secretary of the Association of State and National Food and Dairy Departments, Lexington.

LOUISIANA.

Dr. C. H. Irion, President, State Board of Health, New Orleans.
Dr. R. E. Blouin, Director, Louisiana Sugar Experiment Station, New Orleans.

MASSACHUSETTS.

Mr. P. M. Harwood, General Agent, Massachusetts Dairy Bureau, Boston.

MICHIGAN.

Hon. A. C. Bird, State Dairy and Food Commissioner, Lansing.
Prof. Floyd W. Robison, Chemist, Dairy and Food Commission, Lansing.

MINNESOTA.

Hon. John McCabe, Assistant Dairy and Food Commissioner, St. Paul.
Prof. Julius Hortvet, Chemist, Dairy and Food Commission, St. Paul.
Mr. W. W. Wall, Secretary, Dairy and Food Commission, St. Paul.
Mr. J. G. Fowler, Inspector, St. Paul.

MISSOURI.

Prof. R. M. Washburn, Dairy and Food Commissioner, Columbia.
Mr. Louis E. Cline, Assistant Chemist, Dairy and Food Commission, Columbia.

NEW JERSEY.

Mr. R. B. Fitz-Randolph, Director, State Laboratory of Hygiene, Trenton.

NEW YORK.

Hon. Henry H. Kracke, Assistant Commissioner, Department of Agriculture, Second Division, No. 23 Park Row, New York City.

Mr. F. M. Greene, Representative, Department of Agriculture, Albany.

Mr. E. F. Burke, Representative, Department of Agriculture, Albany.

NORTH CAROLINA.

Mr. T. K. Bruner, Secretary, State Board of Agriculture, Raleigh.

Prof. W. M. Allen, Food Chemist, State Board of Agriculture, Raleigh.

NORTH DAKOTA.

Prof. E. F. Ladd, Food Commissioner, and Chairman of the Convention of the Association of State and National Food and Dairy Departments, Fargo.

OHIO.

Hon. Renick W. Dunlap, State Dairy and Food Commissioner, Columbus.

Dr. James H. Beal, Chemist, Dairy and Food Commission, Scio.

PENNSYLVANIA.

Hon. James Foust, Dairy and Food Commissioner, Harrisburg.

Dr. William Frear, Chemist, Dairy and Food Commission, and Chairman of the Food-Standards Committee of the Association of Official Agricultural Chemists, State College.

SOUTH DAKOTA.

Prof. A. H. Wheaton, State Food and Dairy Commissioner, Brookings.

Prof. J. H. Shepard, Chemist, Dairy and Food Commission, Brookings.

UNITED STATES DEPARTMENT OF AGRICULTURE.

Washington, D. C.

Dr. W. D. Bigelow, Chief, Division of Foods, Bureau of Chemistry, Department of Agriculture.

Prof. Ed. H. Webster, Chief, Dairy Division, Bureau of Animal Industry, Department of Agriculture.

Mr. W. G. Campbell, Chief Food and Drug Inspector, Bureau of Chemistry, Department of Agriculture.

Dr. Joseph Hocing Kastle, Hygienic Laboratory, United States Public Health and Marine Hospital Service, Washington, D. C.

Prof. R. E. Doolittle, Chief of New York Laboratory, Department of Agriculture.

Prof. A. L. Winton, Chief of Chicago Laboratory, Department of Agriculture.

Mr. Ivan C. Weld, Assistant Dairyman, Dairy Division, Department of Agriculture.

Mr. H. H. Wagner, Food Inspector for the State of Virginia, Department of Agriculture.

Virginia.

Prof. E. W. Magruder, Chief Chemist, Department of Agriculture, Richmond.

Dr. C. M. Bradbury, Assistant Chemist, Department of Agriculture, Richmond.

Mr. W. T. Holdsworth, Milk and Food Inspector, Richmond.

Wisconsin.

Hon. J. Q. Emery, Dairy and Food Commissioner, Madison.

Dr. Richard Fischer, Chemist, Dairy and Food Commission, Madison.

Wyoming.

Hon. E. W. Burke, Dairy and Food Commissioner, Evanston.

Prof. Henry G. Knight, State Chemist, Board of Health, Laramie.

DELEGATES TO THE CONVENTION, FROM CITY PURE-FOOD DEPARTMENTS NOT MEMBERS OF THE ASSOCIATION OF STATE AND NATIONAL FOOD AND DAIRY DEPARTMENTS.

Kansas City, Mo.

Dr. N. P. Cutler, General Food Inspector.

Richmond, Va.

Dr. E. C. Levy, Chief Health Officer.

REPRESENTATIVES PRESENT FROM ALLIED ASSOCIATIONS, COMMISSIONS, AND LEAGUES.

Prof. H. A. Weber, Columbus, O., member of the Food-Standards Committee of the Association of Official Agricultural Chemists not recorded as members of a State or National Food Department.

Mr. William F. Snow, representing the Pure-Food Commission of the Medical Society of the State of California.

Miss Alice Lakey, Chairman, Food Investigation Committee of the National Consumers' League, Cranford, N. J.

Mr. E. G. Routzahn, Director, American Tuberculosis Exhibition of the National Association for the Study and Prevention of Tuberculosis, Chicago, Ill.

Mr. Henry Beach Needham, Secretary, People's Lobby, Washington, D. C.

MANUFACTURERS AND THEIR REPRESENTATIVES PRESENT.

Mr. Edwin C. Johnson, Secretary, National Association of Manufacturers of Food Products, Boston, Mass.

Mr. F. E. Holliday, Vice-Chairman, Committee on Proprietary Goods, National Wholesale Druggists' Association, New York.

Mr. Dana T. Ackerly, of Breed, Abbott, and Morgan, Attorneys for the National Wholesale Grocers' Association, New York.

Mr. W. E. Robinson, Representative, National Canners Association, Bel Air, Md.

Mr. Percy T. Morgan, President, California Wine Association, San Francisco, Cal.

Mr. William M. Griffin, Fruit Growers' and Packers' Association, San Francisco, Cal.

Mr. H. W. Hoops, representing National Confectioners Association, New York.

Mr. T. E. Lannen, Attorney for the National Confectioners' Association, Chicago, Ill.

Mr. Sebastian Mueller, H. J. Heinz Company, Pittsburg, Penn.

Mr. L. S. Dow, H. J. Heinz Company, Pittsburg, Penn.

Dr. David Wesson, Southern Cotton Oil Company, New York.

Mr. W. D. Richardson, Swift and Company, Chicago, Ill.

Mr. W. W. Archer, Armour and Company, Chicago, Ill.

Mr. A. Lowenstein, Chemist, Nelson, Morris, and Company, Chicago, Ill.

Mr. Alick G. Richardson, Vice-President, J. Hungerford Smith Company, Rochester, N. Y.

Dr. T. B. Wagner, National Corn Products Company, Chicago.

Mr. Willis P. Anderson, Secretary, J. Hungerford Smith Company, Rochester, N. Y.

Mr. H. L. Harris, Pacific Coast Borax Company, New York.

Mr. E. E. M. Newton, representing Reid, Murdoch, and Company, Chicago, Ill.

Mr. Jay D. Miller, representing Sprague, Warner, and Company, Chicago, Ill.

Mr. Edmund W. Taylor, of E. H. Taylor, Jr., and Sons, Frankfort, Kentucky.

Mr. W. M. Hough, General Counsel, National Wholesale Liquor Dealers' Association, St. Louis.

Mr. M. Blakemore, Goodwin Preserving Company, Louisville, Ky.

Mr. S. Castleman, Torbitt and Castleman, Louisville, Ky.

OTHERS PRESENT.

Dr. Edward Gudeman, Chemist, representing National Confectioners' Association, Chicago, Ill.

Mr. David Chidlow, Chemist, Washington, D. C.

Miss M. J. Wood, Official Reporter, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

Mr. F. N. Barrett, *American Grocer*, New York.

Mr. W. O. Bates, *Barrels and Bottles*, Indianapolis, Ind.

INDEX

ACETANILID in headache medicine and the guaranty clause of the National Pure-Food Law, 193

Adams, Hon. H. C., quoted, 50, 53, 54

Adulterants in spices, those used in Europe quite different from those employed in America, 222; microscope the most useful aid in discovering and determining nature of, 226; but study of the variations in quantity of aromatic spices would prove highly valuable, 226; limitations of microscopic examination, 226. See also *National spice standards*, and the various spices mentioned in that entry

Adulteration, canned-goods packers zealous in stamping out, 58

Adulteration of drugs, 122 ff.; defects in laws concerning, 129–134

Adulteration of food products, N. Y. Court of Appeals on, 52

Adulteration of milk, 75, 76, 85

Alabama, food-control conditions in, 116; little interference with use of preservatives and color in foods in, 117

Alcohol, aldehyde-free, in detection of bleached flour, 199

Alcohol and whiskey not "like substances," 167–169. See also *Rectifiers*

Alcohol, flavored as whiskey, 184; vs. brandy, price of, 184

Alcohol, standard, 372

Aldehyde-free alcohol, in detection of bleached flour, 199; Dunlap and Bailey method of preparing, 199

Alimentary products, falsification of, not an invention of modern times, 17

Allen, R. M., 7, 111; on dairy score cards, 73; on the price of milk, 82; co-operative distribution, 82, 83; bottling, 83; on place of meeting of next Convention, 163, 165, 210, 213, 214; on plain labelling, 175–195; on personnel of Standards Committee, 383–385

Allen, W. M., on effect on butter of feeding cotton seed or cotton-seed meal, and difficulties met with in detecting its adulteration, 65–68; his important work as Food Chemist in North Carolina, 119, 120

Almond flour, 138

Alum, attempt to conceal presence of, in baking-powder by substituting scientific phrase in label, 192

American wines and the Pure-Food Law, 282–298; question what is wine agitating grape-growers throughout the world, 282, 285; authoritative answer of great consequence to vineyardists, 282; successful competition against products yielding two or three times as much alcohol as the same weight of grapes impossible, 282; various products sold as wine under labels of pure-food laws, 282–283; "cider" vs. "wine," 283; injustice to producer of fermented grape juice, 283; Pure-Food Law not a benefit to maker of wines exclusively from grapes, 283; inhibition of National law in States where uniform legislation has not been enacted covers only goods in original packages, 283; when bulk broken, subsidiary packages may be relabelled at fancy of distributor, 283; uniform enactments in all the States needed to give automatic effect to local laws where Federal authority over interstate commerce ceases, 283; the question summed up by Mr. Otto Ericson, 283, 284; making of pure wines, 284 ff.; dry wines, 284, 285; sweet wines, 285; sherries, 285; processes simple, 285; excellent wines can be made in various parts of the U. S., 285; purity of California wines, 286; symbol "Cal" or "Cala" prefixed to name of wine a guaranty of purity by both shipper and State, 286; great fertility of vineyards of California, 286; only drawback its great distance from consuming centres, 286;

disadvantage lessened upon completion of Panama Canal, 286; possibilities of the future, 286; analyses of typical California wines, 289–298
Analyses of California wines, 289–298
Aniline butter color, harmfulness of, 197
Aniline color in confectionery, 157
Animal products, standards of, as fixed by Food-Standards Committee, 349–353
Antiferment in "no-preservative" goods, 263
Antikamnia in headache medicine and the guaranty clause of the National Pure-Food Law, 193
Antiseptics, laws forbidding sale of foods containing, 54; in tomato catsup, 141–145; vs. natural products of decomposition, question which the more injurious, 262
"Apple brand vinegar," 191
Apple jelly, examples of misbranding of, 187, 188
Apple juice, apple must, sweet cider, standard, 368, 369
Arkansas, food-control conditions in, 117
"Artificial," use of word, in misbranded labels, 191
Artificial color in the preparation of food products, restrictions of, 146–151; coloring of foods traditional and æsthetic, 146; frequently used to conceal inferiority or to give verisimilitude, 147; but not *per se* a deception, 147; butter vs. oleomargarin, 148, 149; only question of coloring that of wholesomeness, 149, 150; coal-tar colors, 150; recommendations, 151; growing sentiment against artificial color, 152
Artificial coloring, importance of prohibiting use of, where used for purpose of deception, 154–157; labelling, 155, 156
Artificial coloring in soda-water flavors required to be declared in labels, 158–161
Artificial coumarin, 173
Artificial preservatives, preparation of fruits and vegetables with and without, 252–260; arguments of scientists for and against, 253–256; salicylic acid, 253; benzoic acid and benzoate of soda, 254, 255; absolute prohibition only solution of problem, 257, 260; duty of manufacturers in light of present knowledge, 254–257; consumers generally not informed upon subject, 255, 258; no advocates of, in Europe, but used nevertheless, 256; coloring-matter as needless as, 257; concessions in favor of certain articles containing preservatives unjustifiable, 260
Artificial vanillin, see *Vanillin*
"Artificially colored" in a case of misbranding, 188

BACTERIA in milk, 97, 98
Bailey, E. H. S., on the importance of prohibiting the use of artificial coloring where it is used for the purpose of deception, 154–157
Baking-powder, misbranding of, 192; in biscuits, 205, 207, 208; vs. yeast in bread-making, 205
Barnard, H. E., on conditions in the drug trade affecting U. S. P. requirements, 122–128
Beal, J. H., on some aspects of State drug legislation, 129–134
Benzoate of soda, in South Carolina, 116; advisable for the present in tomato catsup, 263; in soda-fountain sirups, 266, 267, 269, 270; harmlessness of, 266, 269, 270; beneficial effects of, 269, 270; from the manufacturer's point of view, see also *Sodium benzoate; Manufacturers of food products*
Benzoic acid, and its sodium salt in tomato catsup, 141–145; and benzoate of soda, introduced to replace salicylic acid, now classed as injurious, 254
Beverages, standard, 368–376; fruit juices, fresh, sweet, and fermented, 368–372; spirituous liquors, 372–376
Beveridge, Senator, on part played by special interests in moulding legislation, 247
"Big Stick," the, in railroad legislation, 245
Bigelow, Dr., on time of meeting of next Convention, 213
Bird, A. C., on commissioners' rulings, 33–39; on price of milk, 83; proposes Sault Ste. Marie as meeting-place of next Convention, 210, 211, 213, 214; on personnel of Standards Committee, 390
Biscuits, made with baking-powder, 205, 207, 208; experiments to determine elimination or change in character of nitrogen, 207, 208
Bishopp, B. G. D., on the dairy interests of Colorado, 99–104; invites Association to

bold 1908 Convention in Denver, 99; on place of meeting of next Convention 164; on Denver as a Convention city, 211, 212, 213
Black antimony, adulterated, 125; trade in, demoralized, 125
Bleached flour, Committee on, 174
Bleaching of flour, appointment of committee to investigate, 112; paper on, 196–209; introductory, 196; danger of chemicals in, 197; Prof. Winton on, 197; Dr. Wiley on, 197; Paris Association of Bakers on, 197; question one of vital importance, 197; investigation by North Dakota Experimental Station, 197; how produced, 198; methods of detecting bleached flour, 198–202; bleaching process consists mainly in bleaching the oil contained in flour, 199; examination of a number of oils, 199–202; bleaching with chemicals distinctly different from natural aging of flour, 201, 202; effect of bleaching on flour and on bread, 202; effect on gluten, 202–204; effect of over-bleaching, 203, 207, 209; bread from bleached flour, 202, 203, 204, 205, 207, 208, 209; experiments to determine elimination or change in character of nitrogen in baking, 204, 207; low-grade flours added to patents 205, 206; millers admit they bleach "clear" grades, 206; bleachers in North Dakota, 206; conclusions, 208, 209
"Blend," construction of, 177, 192; vs. "Compound" in whiskey labels, rectifiers on, 167, 168
Blended flour, 205, 206
Bob veal, 279
Bonaparte, Attorney-General, on proper definition of words in Pure-Food Law, 179; on primary object of a pure-food act, 260
Bottling of milk, 83, 94, 95
"Brand" as qualifying term in labels, 185, 186, 191
Brandies, standard, 376
Brandy vs. alcohol, price of, 184
Bread, and bread preparations, diabetic, 136–140; effect of bleached flour on, 202–209; made with yeast, 205, 207; with baking-powder, 205, 208; experiments to determine elimination or change in character of nitrogen in baking, 204, 207; quality of, 209
Bruner, T. K., treasurer's report, 113; on food-control work in the South, 114–121; on place of meeting of next Convention, 162
Brunton, Dr., on preservatives vs. natural products of decomposition, 262
Bryan, T. J., on Nominating Committee, 111; on Committee on Bleached Flour, 112; on the sanitary side of the production, manufacture, and distribution of food products, 236–239
Bulk goods, requirements of food laws as to sale of, 194, 195
Bureau of Chemistry, the, and the Port-Inspection Act, 42, 43
Burke, E. W., reviews pure-food control in the West, 215–217; on personnel of Food-Standards Committee, 378, 379, 390, 391
"Burro Ribbon Cane," use of phrase, in misbranded label, 189, 190
Butter, color in, 148–152; harmfulness of aniline in, 197
Butter, effect on, of feeding cotton seed and cotton-seed meal, and difficulties met with in detecting its adulteration, 65–68
Butter, standard, 352
Butter fat, standard, 352
Butter- and cheese-factory sanitation, 105–110; water and drainage, 106; floors, windows, etc., 106; hot water and sunlight the great bactericides and cleansers, 107; especial need of sanitation in cheese-factories, 107–110; injurious germs, 108; cheese-making, in a sense, a process of artificial digestion, 108; curing-room, 109; sanitary requirements of creameries and cheese-factories as great as those of a surgery, 109; lack of interest in dairy sanitation upon part of National Government deprecated, 109; sterilization and disinfection, 110; use of formaldehyde, 110; poor quality of cream a prolific source of insanitation, 110; rigorous enforcement of food and dairy laws urged, 110

"Cal" or "Cala," prefix to names of California wines to indicate their purity, 286
California wines, analyses of, 285, 289–298; purity of, 286; symbol "Cal" or "Cala" prefixed to names of wines guarantees their purity, 286

Campaign contributions, effect of publicity upon, 12
Candy, earth in, 29, 31; standard, 358
Cane-juice brand sirup, 191
Canned goods and date of packing, 180
Canned-goods packers, zealous in stamping out food adulteration, 58; laid foundation for National Pure-Food Law, 58
Canning industry, Mr. Robinson on, 57–62; its growth, 58; National Association formed, 59; striving for uniformity, 59; evils of contrariety of standards, 59, 60; need of uniform guaranties, 61; uniformity of State and National pure-food laws, especially in regard to labelling, urged, 61
Cannon, J. G., inconsistency of, in pure-food legislation, 246
Capsicum, tincture of, commonly below standard, 123
Capsicum products, standardizing of, 231–233; paprika, 231–233, 359; Cayenne pepper, 232, 233, 359; peppers from Africa and India, 232; Japan pepper, 232; Zanzibar peppers, 232; "red" pepper distinguished from Cayenne and paprika, 233
Casein flour, 138
Cassia, standard, 234, 360
Catsup bottle, possibilities in, since enactment of Pure-Food Law, 270, 271
Catsup without preservative, fermentation and explosion of, 271. See also *Tomato catsup*
"Champagne," use of term on labels, 185
Cheese, misbranding of, 73; standard, 353
Cheese-factory sanitation, 105–110
Chemical preservatives and coal-tar dyes in foods and beverages prohibited in North Carolina, 120
"Cherry," use of term, in a misbranded label, 189
Chicory and coffee, misbranding of mixture of, 192
Cider, standard, 368, 371, 372
"Cider" vs. "wine," 283
Cinnamon and cassia, standardizing of, 234, 360; analyses and maximum ash limit of, 234
Citizen, the, and food laws, 11
Citral, 171, 172
City action, possible accomplishment by independent, 25–31
"Clean," meaning of, in spice standards, 224
Cloves, standard, 360
Coal dust sold for black antimony, 125
"Coal Oil Johnnies," Kansas City food inspectors known as, 29
Coal-tar dyes, in candies in Kansas City, 28; in South Carolina, 116; and chemical preservatives in foods and beverages prohibited in North Carolina, 120
Cocaine required to be declared in label, 176
Cocoa and cocoa products, standard, 368
Coffee and chicory, misbranding of mixture of, 192; standard, 367
Cold-process concentrated soda-fountain sirups, 266, 267
Cold storage as an agent in preservation of food, 253
College of Physicians of England and the Pharmacopœia, 123
Color, artificial, restrictions of, in the preparation of food products, see *Artificial color*
Colorado, dairy interests of, 99–104; prospects of, as a dairy State, 99, 100; illegitimate sale of oleomargarin in, a great hindrance to dairying, 100, 101; milk supply of the cities of, 101, 102; tests of dairy stock for tuberculosis, 102; progressive spirit of the Colorado dairyman, 103; tuberculin test source of a gross fraud, 103
Coloring, artificial, importance of prohibiting use of, where used for purpose of deception, 154–157
Coloring in foods, deception caused by, 155, 156; concrete cases, 156
Coloring-matter unnecessary in food preparations, 257
Coloring-matters, standard, 378
Commissioners' rulings, 33–39
Committee on Bleached Flour, 174

Committee on Nominations, 240; report of, 287
Committee on Resolutions, 113; report of, 387–389
"Compound," objected to in whiskey labels by rectifiers, 167, 168; use of term, in misbranded labels, 189, 190; insufficient in certain cases, 193
Compound preserves, misbranding of, 188
Condiments (except vinegar and salt), standard, 359–367; spices, 359–362; flavoring extracts, 362–365; edible vegetable oils and fats, 365–367
Confectionery, coloring of, suggested by the æsthetic sense, 146, 156; color in, "not added with intent to deceive," 156, 157, 158, 159, 161; no pecuniary gain in coloring, 157; wholesomeness of colors used, 148, 157; aniline, 157; provision as to labelling, 158
Congress and pure-food legislation, 241, 242, 243, 244
Consumer, educating the, 275, 276, 277, 279, 280, 386, 387
Consumers, encouragement of dishonest producers of food by, 12, 386; in Minnesota 13
Co-operation between the State and Federal authorities in the enforcement of pure-food laws, 15–24; basic idea of Department of Agriculture, 247
Co-operation in distribution of milk, 82, 83
Corn sirup, 340–345; manufacture of, an important industry, 340; protection and stimulation of latter vitally interesting to corn-producing farmer, 340; first called "glucose" and used in candy making and as an adulterant, 340; prejudice and misrepresentation, 340; "corn sirup" vs. "glucose," 341–343; in great favor with consumers, 341; the business never more active than to-day, 341; "Karo Corn Sirup" signs met everywhere, 341; daily shipments of forty carloads, 341; adverse stand of Dept. of Agriculture with regard to name "corn sirup," circular 21 omitting it as a synonym for "glucose," 341; Board of Food and Drug Inspection hold that product is misbranded unless labelled "glucose," 342; contention of manufacturers, 342; Michigan Supreme Court upholds "corn sirup" as synonym for "glucose," 342; food authorities recognize name "corn sirup," and recently enacted food laws give it preference over "glucose," 343; trying position of manufacturers, 343; discussion on misbranding of glucose, 344, 345
Corn starch, inspection of, in Kansas City, 27
Cotton seed and cotton-seed meal, effect on butter of feeding, and difficulties met with in detecting adulteration of such butter, 65–68
Cotton-seed oil as a food product, 56
Cottonham, Lord, on label infringement, 182
Coumarin, artificial, 173
Cows, old, feeding of, with refuse from hotels, 277; sold for food when fattened, 277
Cream, poor quality of, a direct cause of insanitation in and about some factories, 110; standard, 352
Creameries. See *Butter- and cheese-factory sanitation; Dairy inspection*
Crumbine, Dr., on guaranty clause in Kansas, 133
Crumpacker, Representative, and the standardizing of foods by Department of Agriculture, 246
"Currant-brand jelly," 191
Cutler, W. P., on possible accomplishment by independent municipal action, 25–31

DAIRY inspection, 69–74; detection of fraud, 69; sanitary inspection at present unsatisfactory, 70, 71; publicity, 70, 74; rating, 71; score-card system, 72, 73, 74
Dairy interests of Colorado, the, 99–104. See also *Colorado*
Dairy products, frauds in, 69
Defects in State drug legislation, 129–134; how remedied, 131, 132
Denver, plea for holding next Convention in, 212
Department of Agriculture, ruling of, as to use of word "Brand" in labels, 191; issue Food-Inspection Decision No. 70, regarding guaranty, 219; provision authorizing standardizing of foods by, stricken out of Agricultural Appropriation Bill 246; co-operation betewen State and Federal officials for enforcement of Pure Food Law, basic idea of, 247
"Deviled ham" and "Potted ham" in misbranded labels, 186

Diabetes, statistics, 135; diet in, 135 ff. See also *Diabetic foods*

Diabetic foods, 135–140; importance of proper, 135; some harmful, 135; what permissible, 135 ff.; bread preparations, 136 ff.; gluten flour, 137 ff.; Soja-bean meal, 137, 138; almond flour, 138; casein flour, 138; labelling and marketing, 139, 140

Doolittle, R. E., review of port-inspection work by, 40–47

Drug adulteration vs. food adulteration, 122 ff.

Drug-control work, 122 ff.; hitherto slighted in enforcement of food and drug laws, 122; should be co-ordinate with study of foods, 122; enactment of new laws, 122; food adulteration vs. drug adulteration, 122, 123; control in Indiana, 122 ff.; inferiority of drugs and medicines mostly due to careless preparation, 123, 125; pharmacopœial requirements, 124 ff.

Drug laws, defects in. See *Drug legislation*

Drug legislation, some defects of, 129–134; administrative, 129–131; substantive, 131, 132; the guaranty clause, 132, 133; labelling, 133. See also *State Boards of Pharmacy; Standards, Pharmacopœial; Guaranty clause in drug laws; Labelling, defects in drug laws as to*

Drug trade, conditions in, affecting U. S. P. requirements, 122–128

Druggists, anticipated opposition by, to change in drug laws, 131

Drugs, adulteration and misbranding of, defects in State laws concerning, 129 ff.

Drugs, crude, mostly imported, 41

Drugs and narcotics required to be declared in labels, 176

Dunlap and Bailey method of preparing aldehyde-free alcohol, 199

Dunlap, R. W., on right to vote in Convention, 165

EARTHS in candies, 29, 31

Editing Committee, Association votes, on motion of Mr. Kracke, that officers act as, 383

Election of officers of the Association, 287, 288

Emery, J. Q., 30, 31, 38, 39, 95; on the element of uniformity in National and State food laws, 48–55; on misbranding of cheese, 73; on publicity in dairy inspection, 74; on price of milk, 82, 84; on adulteration, 85; on requirement that artificial coloring be declared on labels, 159–162; on place of meeting of next Convention, 162, 163, 212, 213, 214; on misbranding of glucose mixtures, 344, 345; moves appointment of a Press Committee, 345; draws parallel between manufacturer who finds antiseptics and artificial coloring-matter unnecessary and another who claims that certain products are better so preserved, 387; reads report of Committee on Resolutions, 387–389; on personnel of Standards Committee, 390

Ericson, O., on uniform re-enactment of the Federal law by the State legislatures, 284; advantage gained thereby, 284

Examples of misbranding, 186–195

Executive Committee, report of, 8

Experiments to determine effect on the human system of sulphur as sulphites in Louisiana-manufactured sirups and molasses, 299–399; introductory, 299; selection of subjects, 300, 301; quarters occupied by subjects, 301, 302; work and exercise required, 302, 304; description of subjects, 303; control, 304, 305; psychic influence, 305; diet, 306–313; bill of fare, exclusive of sirups, etc., 307–310; molasses consumed, 310–313; history and development of the Louisiana sugar industry, 314–318; clarification of the juice, 315; processes of manufacture, 316, 317; chemical compositions, 317, 318; composition of sirups and molasses fed to subjects, 319, 320; medical examination and supervision, 320–332; physical condition of subjects during first week of observation, 333; daily weights of subjects, 334, 335; discussion of examinations and data, 336–338; conclusions, 338, 339; experiments resulted in the finding that feeding with molasses containing even as high as over 900 milligrams per kilo of sulphur can be carried on without prejudice to health, 339

FACTORS in the problem of effective protection in food regulation and control, 33, 34

Fermentation in catsup made without preservative, 262, 271

Fischer, R., on the guaranty clause, 51; on State drug laws based upon National law, 134; submits report of Food-Standards Committee, 347–378
Flavor, price determined by, 184, 185; as qualifying term in labels, 185, 186
"Flavor and color" in a misbranded label, 187
Flavoring extracts, standard, 362–365
Fleurent method of detecting bleached flour, 198, 199
Florida, food-control conditions in, 118; hypersampshire, frostine, and preservaline in, 118
Flour, bleaching of, see *Bleaching of flour;* low-grade, "improving" of, 205–207; susceptibility of, to contamination, 209; standard, 354
Food adulteration vs. drug adulteration, 122 ff.
Food commissioner, the thoroughly equipped, 36; needs co-operation of manufacturer, 36, 37; wide freedom of interpretation of law desired for, 38
Food-control work in the South. See *South*
Food inspection in Kansas City, 25–30
Food law, the most effective, 34, 35
Food legislation, object of, 49
Food-preserving industry, improvement in quality of products of, 252; progress due largely to the work of the Association, 252; but co-operation and support of manufacturers essential, 252; absolute prohibition of artificial preservatives advised, 253, 257, 260; coloring-matter needless, 257; honest labelling most desirable, 258; Government guaranty label misleading, 258; bulk vs. package goods, 258; greater degree of uniformity in State laws urged, 259; vexatious requirements of special or extra labels, 259, 260; concession of use of preservatives in certain articles unjustifiable, 260
Food products, adulteration of, N. Y. Court of Appeals on, 52; Ohio Supreme Court on, 52; restrictions of artificial color in preparation of, 146–151; sanitary side of production, manufacture, and distribution of, 236–239
Food regulation and control, factors in problem of effective protection in, 33, 34
Food-Standards Committee, 19; report of, see *Report of F. S. C.*
Food and Drugs Act, section eleven of the, 40; inspection of foreign food products under, 40–47; attitude of importers toward, 46, 47; foreign manufacturers and, 47
Foods, diabetic, see *Diabetic foods*
Formaldehyde, use of, in disinfection, 110
Formalin in Mississippi, 117
Formulas, proprietary, vs. U. S. P., 126, 127
Foust, J., on place of meeting of next Convention, 163, 164, 165; on time for holding next Convention, 214
Frauds in dairying, 69
Frear, W., on National spices standards, 222–235
Freezin in the South, 120
Frostine in Florida, 118
"Fruit, Jelly, Currant," misbranding of, 187
Fruit juices—fresh, sweet, and fermented—standard, 368–372
Fruit sirups from fruit juices, 265 ff.; methods of producing, 265–267; sterilization destroys large percentage of fruit flavor, 265, 266; cold-process concentrated sirups, 265, 266; soda-fountain trade enormously increased by use of latter, 266; necessity for preservative, 267; fruit products preserved by sterilization spoil rapidly after opening, 267; benzoate of soda a desirable preservative, 269
Fruits and vegetables, preparation of, with and without artificial preservatives, 252–260; standard, 354–356; fruits and fruit products, 354, 355; vegetables and vegetable products, 356

Georgia, new food law in, 116
Ginger, standardizing of, 234, 235, 360; maximum ash limit of, 234; limit first adopted encouraged importation of poor material and also adulteration of ground ginger, 235; analyses and ash content, 235; tincture of, commonly below standard, 123
Glucose and New-Orleans molasses, plain labelling of mixtures of, 177, 178
"Glucose," arrangement of term, in labels, 187, 188, 189, 190

Glucose products, standard, 358
Glucose sirup, misbranding of, 189
Glucose, vs. sirup in labelling, 184; misbranding of, 342, 344, 345. See also *Corn sirup*
Gluten flour, 137–140
Gluten in flour, effect on, of bleaching, 202–204, 208
Grain products, standard, 353, 354; grains and meals, 353, 354
Grape-growers, American, and the Pure-Food Law, 282
"Grape sugar" in a misbranded label, 187
Griess method of detecting bleached flour, 198
Guaranty clause, the, 19; a component part of the "golden image" of uniformity, 49; Hon. H. C. Adams quoted, 50; likened to the shell game, 51; its lawfulness questioned, 51; further criticism, 51–55; in drug laws, defect in, 132; in Kansas, 133; misbranding under, 193, 194; misconstruction caused by, 193, 194; Kentucky case cited, 194; confusion due to misleading element in, 194; Prof. E. W. Magruder on the, 218–221; excepting the Whiskey Clause, no part of the Food and Drugs Act more discussed and criticised than the, 218; provision in Sec. 9 of the Act for protection of the dealer eminently just, 218; guaranty filed with Secretary of Agriculture by manufacturer or dealer, with the attendant serial number, widely misconceived and abused, 219, 220; Department issues decision that it accepts no responsibility for the guaranty filed, and that it and the serial number representing it are only those of manufacturer, 219; but few see decision and dealers do not call attention to it, thus abuse likely to continue, 220; unfortunate wording of guaranty lends itself to false interpretation, 220; change in phraseology proposed, 220, 221
Guaranty, proposed new form of, 220, 221
Gudeman, Dr., on earths in candies, 31; on coloring-matter in confectionery, 157; on soda-water, 160

"HAM FLAVOR" in misbranded labels, 186
Harwood, P. M., on the milk standard and the question of its usefulness, 74–85
Honey, standard, 358
Hoops, H. W., on earths in candies, 31
Hortvet, J., on restrictions of artificial color in the preparation of food products, with specific recommendations, 146–151
House of Representatives, the, and pure-food legislation, 243, 244
Human system, effect on, of Louisiana-manufactured sirups and molasses, see *Experiments*
Hypersampshire in Florida, 118
Hypophosphates, compound sirup of, proprietary vs. U. S. P. formulas, 126, 127

ICE CREAMS, standard, 353
Ice milk, 30
"Ice-savers" in the South, 120
Icein in the South, 120
Illinois Food Law, 17, 18; food-control conditions in, 385, 386
Imitations, antagonistic feature concerning, in the National law, 53
Imported food products, inspection of, 40–47
Importers, their attitude toward the Port-Inspection Act, 46, 47
Indiana, drug control in, 122 ff.; adulterated drugs in, 123, 124, 125
Insanitary conditions in packing-houses, etc., much exaggerated, 236; reports in newspapers give false impression, 236; effect of publicity, 236
"Inspected and passed" as a brand upon meat products, 194
Intent, question of, in food laws and labels, 182
Interstate Commerce Law, the, and pure-food laws, 19
Iodine, tincture of, below standard, 123, 125
Irion, C. H., 56; on place of meeting of next Convention, 163; on New Orleans as a Convention city, 212, 213; on the effect on the human system of Louisiana-manufactured sirups and molasses, see *Experiments;* on misbranding of glucose, 344, 345; on personnel of Standards Committee, 383, 385, 390
Iron, tincture of, below standard, 123, 125

JANUS-FACED feature concerning imitation in the National law, 53
"Jell-o," misbranding of, 188, 189
Johnson, E. C., on need of benzoate of soda by manufacturers and their desire for co-operation and assistance, 271–273
Jones, A. H., upon co-operation between State and Federal authorities in the enforcement of pure-food laws, 15–24; on place of meeting of next Convention, 164, 213, 214; on food-control conditions in Illinois, 385, 386; on work of the Association and of the National food authorities, 385, 386; on personnel of Standards Committee, 390

KANSAS, labels of food articles in, must state presence of artificial coloring-matter, 158
Kansas City, Mo., pure-food law of, 25–31; inspection work, 25–30; Food-Inspection Department statistics, 29
"Karo Corn Sirup," see *Corn sirup*
Kastle, Dr., on milk question in Washington, D. C., 97, 98
Kentucky, efficient enforcement of food laws in, 118; labelling provisions of, 178; some ambiguities, 178; Court of Appeals of, on trade-mark infringement, 182; misbranding under law of, 186, 192; sale of products made from ingredients "guaranteed by the National Government" prohibited in, 194; signs required for sirups used at soda fountains of, 195; Court of Appeals on misbranding of whiskey, 248
Konserver in the South, 120
Kracke, Henry H., remarks by, 62–64; on place of meeting of next Convention, 162, 164

LABEL, elements of a, 179–183; attitude of manufacturers, 179 ff.; of wholesalers 180 ff.; date, 179, 180; name of manufacturer and location of factory, 180
Label infringement, judicial decisions on, 181, 182
Labelling, of food products, provision for, in the new law, 18–20; fundamental principle of, 20; of foreign products, improvement in manner of, 46; National Canners' Association urges uniformity in pure-food laws especially in regard to, 61; defects in drug laws as to, 132, 133; provision permitting products to vary from Pharmacopœial and National Formulary standards, 132; how amended, 132; official preparations, 133; of diabetic foods, 139, 140; honest, most desirable, 258; Government guaranty label misleading, 258; vexatious requirements of special or extra labels on articles that are pure, 259, 260. See also *Plain labelling*
Labels, designation of artificial coloring in, 155, 156; of food articles in Kansas must state presence of artificial coloring-matter, 158; on tomato catsup in North Carolina required to state quantity of benzoic acid or sodium benzoate, 177; on whiskey, 167, 168; "orphan," 193; misbranding of, see *Misbranding*
Ladd, E. F., presides at Convention, 8, 10, 14, 24, 31, 32, 39, 47, 55, 56, 57, 62, 64, 68, 72, 81, 85, 97, 98, 104, 111, 112, 113, 121, 128, 134, 140, 145, 153, 157, 162, 163, 164, 165, 174, 209, 212, 213, 214, 217, 221, 235, 239, 240, 251, 260, 263, 273, 281, 287, 288, 339, 345, 346, 379, 383, 390, 391; on bleaching of flour, 195–209; chosen president, 288; names Press Committee, 383
Lakey, Miss A., on work of National Consumers' League for uniform food laws, 274–281; on establishment of standards, 346; requests material for information of consumer, 386, 387
Lanman, T. E., on requirement that artificial coloring be declared in labels of soda-water flavors, 158–161
Lard, misbranding of, 191; made from swine dying of disease, law of Iowa as to, 278; standard, 351
Laudanum, tincture of, below standard, 123; danger in variable strength of, 123
"Leaf-brand lard," 191
Legislation, some defects of, in State drug laws. See *Drug legislation*
Lemon extract, synthetic color in, 156; misbranding of, 190
Lemon grass and lemon-grass oil. 172
Lemon oil, see *Oil of lemon*
Levy, E. C., on milk-inspection work at Richmond, Va., 86–97

Life-insurance question, effect of publicity upon, 12
"Like substances," 166–174; construction of term in food laws, 166 ff.; its definition as fixed by food officials destined to have far-reaching and beneficial results, 167; whiskey and, 167–170; maple sugar and, 170, 171; oil of lemon and, 171, 172; vanilla beans and, 172, 173; "like" not necessarily synonymous with "identical," 172; the era of pure-food legislation, 173, 174
Lime water, adulteration of, 123, 125
Lobbyists in Washington, their work in opposition to pure-food legislation, 243, 244, 245, 246
Lodge, Senator, and the standardizing of foods by Department of Agriculture, 246
Loudon, C. F., on preparation of tomato catsup with and without preservatives, 261–263
Louisiana, food-control conditions in, 117
Louisiana-manufactured sirups and molasses, experiments to determine effect of, on the human system. See *Experiments*
Louisiana sugar industry, history and development of, 314–318

MACARONI wheat flour, bleaching of, 205
McCabe, J., 10
Mace, standardizing of, 233, 234, 360; seed mantle of Banda or Java mace alone salable under name, 233; separate standards for Macassar and Bombay maces, 233, 234, 361
Magruder, E. W., on the guaranty clause, 218–221
Manufacturers, Government's unfairness to, 268; ready to adopt any suggestion that will improve their products and yet enable them to continue in business, 268; they and many scientific men think use of benzoate of soda not only harmless but beneficial, 269, 270; desire to market pure goods, 270; prohibition of reasonable use of preservatives in food products would be a hard blow to commercial life, 270; serious effect of restriction of manufacture of food products, 270
Manufacturers and labels, 179 ff.
Manufacturers of food products and benzoate of soda, 271–273; great majority need it and think it harmless, 271, 272; statement that it is unnecessary not well borne out, 271; belief that if goods without it be placed upon the market great harm to the public will ensue, 272; effect of its prohibition upon food industry, 272; unsuccessful experiments to obviate use of, 272, 273; assistance and co-operation of the Association desired, 272, 273; special board of authorities suggested to take up the question, 273
Maple products, 170
Maple sirup in Kansas City, 28
Maple sugar and "like substances," 170, 171; cane sugar, 170, 171; effect of pure-food laws, 170, 171
Marketing of diabetic foods, 139, 140
Maryland, Court of Appeals of, on trade labelling, 182; law regarding sale of diseased meat in, 278
Massachusetts, milk laws of, 76, 78; present standard injures farmer, 79; dairying not profitable, 80; falling off in number of cows and other neat cattle, 80. See also *Milk standard*
Meal, standard, 353
Meaning of words in labelling, 178, 179
Meat, diseased, sale of, 276, 277, 278; only 28 States have a specific statute prohibiting, 278; in Maryland, 278; in Virginia, 278; sale of immature, prohibited by nearly all the States, yet bob veal found in every market, 279
Meat inspection, ante-mortem and post-mortem, 277; State inspection desirable, 279, 280; consumers' reliance upon Federal inspectors' stamp, 279; States should give label equally reassuring, 279; National Meat-Inspection Law a model for State laws, 280
Meat shops, inspection of, in Kansas City, 26
Meats and principal meat products, standard, 349–351; meats, 349; manufactured meats, 350; meat extracts, meat peptones, gelatin, etc., 350; lard, 351
Medicinal preparations and the Pharmacopœia, 126

Michigan, antiseptics in tomato catsup in, 141
Michigan chosen as meeting-place of next Convention, 213
Michigan Dairy and Food Department on harmfulness of preservatives, 142, 143; experiment on dogs to determine effect of salicylic acid and other preservatives on digestive fluids, 143
Milch cows, variable quality of milk in, 76; butter of, materially affected when fed on cotton seed or cotton-seed meal, 65
Milk, inspection of, in Kansas City, 26, 29, 30; adulteration of, 75, 76, 85; food value vs. commercial value of, 76, 77; sale of, on basis of fat content would benefit both consumer and farmer, 77, 78, 81, 83; pasteurization no improvement, 78; plea for a National standard, 81; discussion on price of, 81 ff.; co-operation in distribution of, 82, 83; bottling, 83; care of, in the home, 93–96, 276; bacteria in, 97; skimmed, and plain labelling, 177, 178; victory for clean, 275; pasteurization of, needed only when unsafe to use it raw, 275; average consumer regards clean milk as "dear milk," 275, 276; polluted wells and tuberculous cattle found in a milk crusade, 275, 276; tuberculosis transmitted through dirty milk and diseased meat, 276, 279; fattening old and diseased cows for market, 277; limiting ports of entry for cattle to towns where strict inspection possible will partially safeguard both meat and milk supply, 278
Milk and its products, standard, 351–353; milks, 351; cream, 352; milk fat or butter fat, 352; butter, 352; cheese, 353; ice creams, 353; miscellaneous milk products, 353
Milk-inspection work at Richmond, Va., 86–97; sanitary improvement, 86; permits, 86; co-operation of producers sought, 87; conference with dairymen, 87, 88; Dr. Santee, 88, 89; score and other cards, 88–90; warning notices and their effect, 90, 91; fines, 91; milk-business statistics, 92; bacteriological examinations, 92; circular on care of milk in the home, 93–96; progress made, 96
Milk standard, the, and question of its usefulness, 73–85; a milk-standard law wellnigh ideal from the standpoint of the prosecutor, 75; manipulation of milk to conform to standard, 75; water, 75; much of the natural product of poor quality, 76; Massachusetts milk laws, 76, 78; under present conditions many producers driven from the business, 77, 78; sale of milk on basis of fat content would benefit both consumer and farmer, 77, 78, 81; standard prohibiting sale of natural product wrong in principle, 78; present standard of Massachusetts injures farmer, 79; plea for a National standard, 81; discussion, 81–85
Millers, bleaching of "clear" grades by, 206, 207
Minnesota Dairy and Food Department, 11; bulletins of, 11
Minnesota, Supreme Court of, on publicity of composition of foods, 175
Misbranding, 176, 177, 178, 181; what constitutes, 176, 177; as a defence in action for violation of trade-mark law, 182; under National Meat-Inspection Act, 185, 186; under Kentucky law, 186; examples, 186–195; of whiskey, Kentucky Court of Appeals on, 248;
Mississippi, food laws of, a dead letter, 117; great need of their enforcement, 117; formalin, preserving-cakes, and Rex Magnus in, 117
"Mixture," use of term, in labels, 193
Molasses and refiners' sirup, 257
Molasses, compound, misbranding of, 189, 190
Morgan, P. T., on American wines and the Pure-Food Law, 282–298
Morphine required to be declared in label, 176
"Muck rake," its effect upon dishonest producers of food products, 12; upon the packing-house industry, 12
Mueller, Sebastian, on the preparation of fruits and vegetables with and without artificial preservatives, 252–260
Municipal action, possible accomplishment by independent, 25–31
Mustard, standard, 361

NARCOTICS and drugs required to be declared in label, 176
National and State co-operation in the enforcement of pure-food laws, 15–24
National and State food laws, threefold object of, 16; uniformity in, 48–55
National Association of Manufacturers of Soda-Water Flavors, 158

National Association of State Dairy and Food Departments, why organized, 15
National Confectioners' Association, 157
National Consumers' League, work of, for uniform food laws, 274–281; reorganization of Food Committee, 274; plan of work, 274; importance of educating the consumer, 275, 276, 277, 279, 280; clean milk and wholesome meat, 275–277; polluted wells and tuberculous cattle discovered in a milk crusade, 275, 276; tuberculosis transmissible through dirty milk and diseased meat, 276; fattening of old and diseased cows for market, 277; ante-mortem as well as post-mortem inspection of all meat, and sanitary inspection of all slaughter-houses, advisable, 278; while need of latter is great, only few States have specific laws for, 278; amendment of State food laws necessary, 279; general need for State inspection of cattle, slaughter-houses, and meat, 279; adoption of uniform food laws by States only a question of time, 279; a separate meat-inspection law desirable in every State, 280; National Meat-Inspection Law a model, 280; food reform largely dependent on uniform food laws and enlightenment of consumer, 280
National Food and Drug Law, enactment of, 17; guaranty clause in, objectionable, 50, 51; antagonistic feature in, concerning imitations, 53; administration of, likened to National Army under Halleck, 54; cunning ingenuity of certain features of, 54, 55; present law accepted as half a loaf, 55; suggestions for new laws, 55
National Formulary and Pharmacopœial standards, provision permitting products to vary from, defective, 132; how amended, 132
National Meat-Inspection Act, misbranding permitted under, 185, 186, 191
National spice standards, 222–235; Prof. Winton's work in formulation of, 222, 223, 231, 234; analyses made and authorities consulted, 223; definitions, 223, 224; qualities essential to a standard spice, 224; comparison of specific and generic standards, 225; general scope of the spice schedule, 225; plan of formulation, 225, 226; standards for individual spices, 227–235, 359–362; peppers, 227–233, 361, 362; paprika, 231, 232, 359; other capsicums, 232, 233; mace, 233, 234, 360, 361; cinnamon and cassia, 234, 360; ginger, 234, 360
Needham, H. B., on the People's Lobby and its pure-food work, 241–251
New Orleans as a Convention city, 212, 213
New-Orleans molasses and glucose, plain labelling of mixtures of, 177, 178
New York Court of Appeals on adulteration of food products, 52
News bureaus, tainted, 250, 251; work of, a most dangerous form of corruption, 251
Newspaper, the, in the pure-food campaign, 11
Nitrates and nitrites in bleaching of flour, 198, 199, 200, 201, 202, 203, 204, 205, 207, 208
Nitrogen, in bleaching of flour, 198, 200, 201, 202, 203, 204, 208, 209; experiments to determine elimination or change of character in baking, 204, 207
Noble, J. B., on price of milk, 81, 82; on principles of uniformity in pure-food laws, 380–383
North Carolina, excellent food law in, 119; chemical preservatives and coal-tar dyes in foods and beverages prohibited, 119, 120; important work of the Food Chemist, 119, 120; vigorous administration of the law, 119, 120; benzoic acid and sodium benzoate required to be declared in labels on tomato catsup in, 177
North Dakota Experimental Station, investigation of bleaching of flour by, 197–209; bleachers in, 206
Nutmegs, standard, 361

Oats, sulphurous acid as bleach for, 256
Official preparations, defect in drug laws as to labelling, 133
Ohio Supreme Court on adulterated foods and drugs, 52
Oil in flour, examination of, to ascertain changes undergone by, in bleaching process, 199–202
Oil of lemon and "like substances," 171; adulterations, 171, 172; change of labelling necessary, 172; citral, 172; tentative standards, 172
Oil-of-lemon grass, 171, 172
Oil, use of, on condemned goods, 29
Oils and fats, standard vegetable, 365–367

Oleomargarin, coloring of butter and, 149, 152; sold as butter in Colorado, 100, 101
Opium, required to be declared in label, 176; tincture of, frequently below standard, 123; danger in variable strength of, 123
Orange oil, low-grade, as adulteration of lemon oil, 172
Orange tint in bleached flour, 199
O'Rear, Chief Justice, on construction of terms in statute, 183
"Orphan labels," 193
Osler on diabetes, 135

Paprika, standardizing of, 231–233, 359; definitions, 231, 232; standard so framed that term is not to include seeds and stems of large-fruited capsicums without special mention of that fact, 232, 359
Paris Association of Bakers on bleaching of flour, 197
Pasteurization of milk, 275
Patent blended with low-grade flours, 205, 206
Patent-medicine lobby and the Pure-Food Law, 244
People's Lobby, the, and its pure-food work. See *Pure-Food Work of the P. L.*
"Pepina," a mixture of ground olive pits and lamp-black, 192; pepper adulterated with, 192
Pepper, adulterated, misbranding of, 192
Peppers, standardizing of, 227–233, 359-362; black and white, 227–231, 361, 362; Acheen C and Lampong, 228–231; analyses, 228; question of excluding pepper hulls, 228, 229; maximum ash limit, 229, 231; consumption increasing faster than supply, 230; exclusion of Acheen C would increase cost of pepper, 230; capsicum products, 231–233; paprika, 231–233, 359; Cayenne, 232, 233, 359; classification of "red," 233, 359
Peroxid of nitrogen principal agent in bleaching of flour, 198
Pharmacopœia, English, 123; Continental, 124; American, 124; official rating of drugs according to, 124; drug-control work develops fact that P. has been used as an ornament or a club rather than as a ready-reference manual, 124; while ours perhaps best P. in the world, there is much room for improvement, 126; proprietary preparations and the, 126. See also *U. S. P.*
Pharmacopœial and National formulary standards, provision permitting products to vary from, defective, 132; how amended, 132
Plain labelling, 175–195; introductory, 175; labelling requirements, 176–178; some unnecessary and ambiguous provisions, 177; meaning of words, 178, 179; elements of a label, 179–183; adjustment of terms, 183–185; qualifying terms, 185, 186; examples, 186–195
"Plum preserves," misbranding of, 188
"Poison-squad" experiments, conclusions reached by Dr. Wiley in, combated, 262
Poisons in food formed by decomposition, 262
Police authority in enforcement of food laws, 11, 16
Port-inspection work, review of, 40–47; statistics, 43; results, 44–47
Potato chips, sulphurous acid as preservative and bleach of, 256
"Potted ham" and "Deviled ham" in misbranded labels, 186
Preparation of fruits and vegetables with and without artificial preservatives, 252–260. See also *Food-preserving industry; Artificial preservatives, preparation, etc., with and without*
Preservalin in the South, 116, 118, 120
Preservative agents, burden of proof of harmlessness of, rests upon manufacturer, 142
Preservatives, use of, puts a premium upon filth, 45; discontinuance of, in imported food products, 45; in German sausages, 45, 46; laws forbidding sale of foods containing, 54; in tomato catsup, 141–145; required to be declared on label, 176; preparation of fruits and vegetables with and without artificial, 252, 260; elimination of, not wise, practical, or beneficial, 270, 271; and coloring-matters, standard of, as fixed by Food-Standards Committee, 378
Preserving-cakes in Mississippi, 117
Preservite in the South, 120
President Roosevelt and pure-food legislation, 243, 244, 247, 249, 250

Press, the, in the pure-food campaign, 11
Printer's proof of remarks and papers, on motion of Mr. Jones, voted to be submitted to their authors before publication, 383
Proctor, Senator, on standardizing of foods, 246
Proprietary preparations and the U. S. P., 126, 127
Prussian blue in bleaching of flour, 200, 201
Publicity, in the enforcement of pure-food laws, 11–14; an effectual weapon in the hands of a dairy and food department, 11; effect upon campaign contributions, 12; upon legislation, 13; in dairy inspection, 70
Pure-food control in the West, review of, 215–217; situation unique, 215; welfare of the cousumer paramount, 215, 217; conditions in Wyoming, 215, 216; early efforts, 216; manufacturers and wholesalers brought to terms, 216; campaigns agains coal-tar and aniline colors and chemical preservatives, 216; vegetable coloring and benzoate of soda still permitted, under restrictions, in Wyoming, 217; insistence upon plain labelling, 217
Pure-food laws, publicity in the enforcement of, 11–14; paramount importance of, 16, 17; principles of uniformity in, see *Uniformity in pure-food laws*
Pure-food legislation, and the People's Lobby, 241–251; President Roosevelt and, 243, 244, 247, 249, 250; Congress and, 241–247; work of interests opposed to, in Washington, 243–251
Pure-food work of the People's Lobby, 241–251; opposition in Senate to Pure-Food Bill, 241, 242; doctrine of States' rights and pure-food legislation, 241, 242; public sentiment, 241, 242; Dr. Wiley father of the Food and Drugs Act, 242; large share of credit due to food and dairy commissioners, 242; their unselfish work, 242, 243; Congress galvanized into action by President Roosevelt, 243, 244, 247, 249, 250; some notes of the fight, 243, 244; work of interests arrayed against the bill, 243–251; the patent-medicine lobby, 244; People's Lobby, formed in the interest of the people, 245, 247, 248, 249, 251; its successful opposition to the Tawney Amendment, 248; its part in the controversy over the labelling of whiskey, 248, 249; warns against tainted-news bureaus, 250, 251; a National intelligence office, 251

"RASPBERRY FLAVOR" in a misbranded label, 188
Rectifiers alarmed by ruling that whiskey and alcohol are not "like substances," 167; object that ruling would deprive them of use of word "blend," 167; "compound" is assigned but does not satisfy them, 167, 168; more or less fanciful reasons advanced by them in favor of one and against the other term, 168
Refrigerin in the South, 120
Report of Food Standards Committee, 347–378; principles on which standards are based, 348, 349
  Animal products: meats and principal meat products, 349–351; milk and its products, 351–353
  Vegetable products: grain products, 353, 354; fruit and vegetables, 354–356; sugars and related substances, 356–359; condiments (except vinegar and salt), 359–367; tea, coffee, and cocoa products, 367, 368; beverages, 368–376; vinegar, 376, 377
  Salt, 377; preservatives and coloring-matters, 378
  Report adopted, 378; discussion on personnel of committee, 378–379
Resolutions, report of Committee on, 387–389; adopted, 390
Rex Magnus in Mississippi, 117
Richardson, A. G., on the preservation and distribution of soda-fountain sirups with and without preservatives, 264–271
Richmond, Va., milk inspection work at, 86–97; milk-business statistics, 92. See also *Milk inspection work at Richmond*
Robinson, W. E., on the canning industry, 57–62
Robison, F. W., on publicity in dairy inspection, 74; on antiseptics in tomato catsups, 141–145
Roosevelt, President, and pure-food legislation, 243, 244, 247, 249, 250
Root-beer, artificial coloring in, 158
Rums, standard, 375, 376

Saccharin, Dr. V. C. Vaughan on, 141, 142
Salicylic acid, cheapening of its manufacture creates new era in food-preserving industry, 253; its use at one time universal, but now deemed harmful, 253
Salicylic acid and its sodium salt in tomato catsup, 141–145; influence upon digestion, 143, 144
Salt, standard of, as fixed by Food-Standards Committee, 377
Sanitary side of the production, manufacture, and distribution of food products, 236–239; importance of sanitary conditions never greater than to-day, 236; newspaper exaggerations give false impression, 236; foods in the U. S., 236; difficulty in draughting an effective law of general application, 237; specific laws for different classes of foods desirable, 237, 238; high grade of sanitation in large food manufactories, 238; better sanitary conditions than now obtain required of careless manufacturers and small producers, 238; extension of sanitary inspection urged, 238; division in some States of sanitary inspection work undesirable, 239; as to qualification of food inspectors, 239
Sanitation, butter- and cheese-factory, 105–110; whole pure-food problem a question of, 181; importance of plain labelling, 181
Santee, Dr., at Richmond, Va., 88
Sarsaparilla, artificial coloring in, 158
Sault Ste. Marie, its advantages as a Convention city, 210, 211, 213, 214; chosen as place of meeting for next Convention, 213
Sausages, German, and the Food-Inspection Act, 45, 46
Score card, the, and its application to dairy inspection, 69–74, 88–90
Scovell, Dr., on establishment of standards, 346; on personnel of Standards Committee, 391
Senate, the, and pure-food legislation, 241, 242, 243, 244
Serial number of guaranty, 219, 220
Shepard, Prof., on food value of soda water and sarsaparilla, 160, 161; on the word "only," 386
Sirup, meaning of term, 184; glucose vs., in labelling, 184. See also *Corn sirup*
Sirup manufacturers and their labels, 171
Sirups, examples of misbranding of, so as to be sold as "maple sirups," 187
Sirups, standard, 257
Sirups and molasses, Louisiana, see *Experiments*
Sirups used at soda fountains in Kentucky, signs required for, 195
Skimmed milk and plain labelling, 177, 178
Slaughter-house inspection, 277–280; rigid inspection urged, 278; few States have specific laws for, 278; failure to secure law in New Jersey, 278, 280; at present only slaughter-houses where horses are slaughtered for food inspected in that State, 278
Slater, E. K., on publicity in the enforcement of pure-food laws, 11–14
Smith, J. Hungerford, his relation to the soda-fountain trade, 265, 267
Society of Official Agricultural Chemists and food standards, 124
Soda fountain, development and popularity of the, 264; improved conditions, 264; sanitation, 264; important effect of adoption of cold-process concentrated fruit sirups, 265, 266; some statistics, 269; why drinking of soda water should be encouraged, 269
Soda-fountain sirups with and without preservatives, preservation and distribution of, 264–271; benzoate of soda in, 266, 267, 269, 270. See also *Fruit sirups from fruit juices; Soda fountain, development, etc., of*
Soda water, food value of, 158, 159, 160, 161
Soda-water business, magnitude of the, 269; why it should be encouraged, 269
Soda-water flavors, artificial coloring in, required to be declared in labels, 158–161
Sodium benzoate in tomato catsup, 144, 145; influence upon digestion, 143, 144; the manufacturer's friend at the consumer's expense, 144. See also *Benzoate of soda*
Soja-bean meal, 137, 138
"Solution sodium phosphate," U. S. P. vs. proprietary formulas, 127
"Solution sodium phosphate compound," U. S. P. vs. proprietary formulas, 127
"Solution sodium phosphate concentrated," U. S. P. vs. proprietary formulas, 127

"Solution sodium phosphate saturated," U. S. P. vs. proprietary formulas, 127
"Sound," meaning of, in spice standards, 224
South, food-control work in the, 114–121; hitherto indifferent about food laws, 115; but now determined to enforce them, 116, 120; conditions in Virginia, 116; South Carolina, 116; Georgia, 116; Alabama, 116; Louisiana, 117; Mississippi, 117; Arkansas, 117; Florida, 118; Kentucky, 118; Tennessee, 118; Texas, 118; North Carolina, 119; Southern people get large doses of preservaline, freezin, icein, preservite, konserver, refrigerin, etc., 120; summary, 120
Southern Cotton-Seed Oil Company invites Association to luncheon, 56
Spaulding, Dr. Lyman, founds National Pharmacopœia, 124
Spices, standard, 359–362. See also *National spice standards*
Spirits, standard, 372
Sterilization as an agent in preservation of food, 253
Sugars and related substances, standard, 356–359; sugar and sugar products, 356; glucose products, 358; candy, 358; honey, 358
Sulphites, use of, in food prohibited in Kansas City, 27, 28
Sulphur as sulphites in Louisiana sirups and molasses, experiments to determine effects of, on the human system, see *Experiments*
Sulphur, precipitated, trade in, demoralized, 125
Sulphurous acid, oats and potato chips bleached with, 256
Sylvia glucose sirup, misbranding of, 189
Standards for food products, importance of, 19, 20, 53; uniformity in National and State laws essential, 53, 54; evils of contrariety of, in canning industry, 59, 60
Standard, Pharmacopœial and National Formulary, provision permitting products to vary from, defective, 132; how amended, 132
Standards Committee, discussion on personnel of, 378, 379, 383–385
State and National food laws, co-operation in the enforcement of, 15–24; uniformity in, 48–55
State boards of pharmacy and the administration of drug laws, 129–131; inadequate revenues and lack of proper machinery, 130; remedies suggested, 131
State drug legislation, some defects of. See *Drug legislation*
State food and dairy commissioners, important work of, in arousing public sentiment and procuring enactment of pure-food laws, 242, 243
State food laws, greater degree of uniformity, especially in regard to labelling, desired in, 259
States' rights doctrine and pure-food legislation, 241, 242
Sterilization and disinfection in dairies and creameries, 110
Sterilization of fruit sirups destroys large percentage of fresh fruit flavor, 265, 266; not a reliable means of preservation, 267, 270; fruit products so prepared rapidy, spoil after opening, 267; if practicable to sterilize such goods, not only would they be inferior, but smaller packages would be necessary, making cost prohibitive, 267, 270
Stickers for labels in Kansas City, 27, 28
Strawberry flavor, misbranding of artificial, 191
"Style" as qualifying term in labels, 185, 186

TEA, coffee, and cocoa products, 367, 368
Tennessee, lack of enabling power to enforce food laws in, 118
Terms, construction of, in statute, 183; adjustment of, in labels, 183–185; various shades of meaning, 183, 184; construction of terms jelly, whiskey, vinegar, wine, and sirup, 183, 184; definitions and varieties of vinegar, 183, 184
Terms, qualifying, in labelling, 185, 186; "brand," 185, 186; "style," 185; "flavor," 185, 186
Terpeneless lemon extracts, 171, 172; change of labelling necessary, 172
Terpeneless orange extract, 172
Tests of dairy stock for tuberculosis in Colorado, 102
Texas, no serious attempt to enforce food law in, 118
Tincture of citral, 172
Tincture of vanillin, 173
Tinctures below standard, 123, 125

Tomato catsup, antiseptics in, 141–145; effect of preservatives on grade or quality of, 144, 145. See also *Artificial preservatives*

Tomato catsup, preparation of, with and without preservatives, 261–263; elimination of preservatives still in experimental stage, 261; experiments of some packers have not yet resulted in producing a product free from preservative, that has satisfactory flavor and keeping quality, 261; probable risk to consumer using foods without preservative, 261; question whether antiseptics more injurious to health than natural products of decomposition, 262; in considering harmfulness of preservatives or of any article in foods amount and frequency of use must be taken into account, 262; conclusions reached by Dr. Wiley in his "poison-squad" experiments combated, 262; catsup prepared without preservatives frequently in active fermentation when served to consumers, but unnoticed because of acid character, 262; "no-preservative" goods which it is claimed cannot be made to ferment contain antiferment, 263; experiments to continue in hope of reaching a successful result, 263; safer meanwhile to use minimum amount of benzoate of soda, whose presence to be clearly shown by label, 263. See also *Artificial preservatives*

"Tonka," use of term, in a misbranded label, 190

Tonka beans, 173

Trade mark, debarred from protection where deception practised, 181, 182, 191; judicial decisions affecting, 181, 182

Trade-mark and trade-reputation pirates, 182

Treasurer's report, 113

Tuberculin test, the, 102, 103; source of a gross fraud in Denver, Col., 103

Tuberculosis, tests of dairy stock for, in Colorado, 102; transmission of, through dirty milk and diseased meat, 276

Tuberculous cattle, found in milk crusade, 276; discovered in N. J. stock yards and rejected, but slaughtered and sold for food in N. Y., 276; cows bought in N. Y., shipped to N. J., there killed, and sent into N. Y. market, 277

Turmeric in mustard, 156

Turpentine in lemon oil, 172

Twelfth Annual Convention, Michigan chosen for meeting-place of, 213

UNIFORM food laws, work of National Consumers' League to secure, 274–281

Uniformity in National and State food laws, 48–55, 380–383; the "golden image" of, 49, 50; the guaranty clause one of the component parts of the "golden image," 49, 50; Hon. H. C. Adams quoted, 50, 53, 54; guaranty clause likened to the shell game, 51; some objectionable features of uniformity, 51–54; uniformity of standard for food products in National and State laws essential, 53, 54; suggestions, 55; great advance in thought and activity in pure-food work, 380; wholesalers and manufacturers at first opposed, owing to lack of accord in the various State laws, but now hearty supporters, 380; food and dairy commissioners early advocates of a National law, 381; general principles of uniformity, 381; as to coloring and flavoring ingredients, 381; labelling, 382; antiseptics and preservatives, 382; a word for the dealers, 382; a "square deal" all round most easily given when commissioners of all the States work along uniform lines and upon uniform principles, 383

U. S. P., conditions in the drug trade affecting its requirements, 122–128; now an integral part of the food and drug laws, 126; not perfect, but perhaps the best P. in the world, 126; vast number of changes in the Eighth Decennial Revision, 126; proprietary preparations and the, 126; secures absolute uniformity of formulas at expense of invention and progress, 127

"VANILLA" use of term, in a misbranded label, 190

Vanilla beans and "like substances," 172, 173

Vanilla extract, 172, 173

Vanillin, 172, 173; artificial, 172, 173, 190; not a "like substance" with vanilla extractive, 173; labels required, 173; great decline in price, 173; misbranding of artificial, 190

Vaughan, V. C., on saccharin, 141, 142

Wellcome Library

Vegetable oils and fats, standard, 365–367
Vegetable products, standards of, as fixed by Food Standards Committee, 353–377
Vegetables and fruits, preparation of, with and without artificial preservatives, 252–260
Vinegars, color in, 156; various terms and definitions of, 183; standard, 376, 377
Vineyardists, American, and the Pure-Food Law, 282
Virginia, food law in, 116; law as to sale of diseased meat in, 278

Wadsworth, Congressman, and the Meat-Inspection Bill, 245
Wagner, T. B., on corn sirup, 340–345
Washburn, R. M., on quality of milk, 84, 85; on color in butter, 152, 153
Washington, D. C., milk question in, 97
Webster, E. H., on the score card and its application to dairy inspection, 69–74
Wesson, Dr. David, invites Association to luncheon of dishes prepared with cottonseed oil, 56
West, pure-food control in the, see *Pure-food control in the West*
Wheaton, A. H., on price of milk, 83; on butter- and cheese-factory sanitation, 105–110
Whiskey, definition of term, 183, 184; alcohol flavored as, 184; neutral spirits vs., 184; adjustment of term in labelling, 184; misbranding of, 192, 193; Kentucky Court of Appeals on misbranding of, 248
Whiskey and alcohol not "like substances," 167–169. See also *Rectifiers*
Whiskey interest, the, and pure-food legislation, 246, 248
Whiskeys, standard, 372–375
Wholesalers and labels, 180 ff.
Wiley, Dr., on bleaching of flour, 197; father of the Pure-Food and Drugs Act, 242; conclusions of, in "poison-squad" experiments combated, 262
"Wine," products sold under generic designation of, and labelled bewilderingly according to the requirements of the National Pure-Food Law, 282, 283; authoritative definition of, sought, 282, 285
Wine industry, American, 282–287, 289–298
Wines, American, and the Pure-Food Law, see *American wines*
Wines of all kinds, standard, 369–371
Winton, A. L., on diabetic foods, 135–140; on bleaching of flour, 197; his work in formulation of National spice standards, 222, 223, 231, 234
Wisconsin, standard for food products in law of, 53; law concerning preservatives or antiseptics, 54
Words, meaning of, in labelling, 178, 179; in tort proceedings, 178, 179; in contracts, 179; Attorney-General Bonaparte on proper definition of, in Pure-Food Law, 179
Wyoming, pure-food question in, 215, 216

Yeast vs. baking-powder in bread-making, 205

LIBRARY